

PLYWOOD IN CONCRETE FORMWORK



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This manual has been produced for the construction industry by the Plywood Association of Australia. The information, opinions, advice and recommendations have been prepared with due care and are aimed at providing useful background data to assist professionals in the design of safe and economical formwork.

Whilst every effort has been made to ensure that this Manual is in accordance with current technology, the document is not intended to be exhaustive in its coverage of all issues that affect formwork design and construction. The Plywood Association of Australia accepts no responsibility for errors or omissions from the Manual, nor for formwork design or construction done or omitted to be done in reliance on this Manual.

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PLYWOOD IN CONCRETE FORMWORK

PREFACE

The plywood industry first recognised the need to provide design and installation data for the use of plywood in concrete formwork as long ago as 1958 when the first manual "Plywood in Concrete Formwork" was published by the Australian Plywood Board Ltd (forerunner of the Plywood Association of Australia) in cooperation with the CSIRO's Division of Forest Products Melbourne. This manual was revised and republished in 1964.

With the development of more reliable standardised design values for plywood and improved design methods based on AS1720-1975 Timber Engineering Code and AS2269-1979 Structural Plywood, and more stringent requirements for formwork design and construction specified in AS1509-1974 SAA Concrete Formwork Code and AS1510-1974 Control of Concrete Surfaces Part 1 Formwork, the Plywood Association

of Australia produced a new manual 'Plywood in Concrete Formwork' in 1982 to satisfy the changed requirements.

This manual on the use of plywood as concrete formwork reflects the latest requirements, significantly in surface finish and development of concrete pressure specified in the revised formwork code AS3610-1990 Formwork for Concrete. Additionally, design methods for the plywood formwork have been modified in accordance with the latest version of the timber engineering code AS1720.1-1989 Timber Structures Code. This manual is not a stand alone document. It is meant to be read in conjunction with the standard AS3610-1990 Formwork for Concrete.

It is expected that this manual will serve as an aid to plywood formwork design and installation to the turn of the century.

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TABLE OF CONTENTS

	Page
PREFACE	1
LIST OF FIGURES AND TABLES	3
INTRODUCTION	4
CHAPTER 1: PLYWOOD SELECTION FOR SURFACE FINISH CONTROL	6
Surface Characteristics of Plywood Formwork	6
Textured Plywood Surfaces	7
Other Formface Surfacing	7
GRP Facing	7
Rigidity of Formface	8
Release Agents	9
CHAPTER 2: DETERMINATION OF LOADS AND PRESSURES	10
Horizontal Formwork	10
Vertical Formwork	11
Recommendations	15
CHAPTER 3: PLYWOOD SELECTION — STRUCTURAL CONSIDERATIONS	22
Properties Affecting Structural Performance	22
Bond	22
Stress Grade	22
Veneer Arrangement (Construction)	23
Plywood Panels — Standard Dimensions	26
Tolerances	26
The Marking of Plywood Formwork	26
PAA Quality Brand Stamps	27
Structural Properties of Formwork Plywood	27
CHAPTER 4: CONSTRUCTION CONSIDERATIONS	40
The Formface	40
Edge Sealing	40
Joint Sealing	40
Face Steps	41
Use of Liners	41
Assembly Techniques	41
Joining Adjacent Forms	43
Corner Joint	43
Construction Joints	44
Wall Ties for Architectural Concrete	45
Building Forms for Ease of Stripping	46
Formwork Release Agents	48
Common Types of Release Agents	48
Concrete Placing and its Influence on the Surface Finish	49
Stripping the Formwork	49
Handling, Cleaning and Storage	49
APPENDIX A: Calculation of Section Properties	50
APPENDIX B: Calculation of Allowable Concrete Pressures	52
REFERENCES AND FURTHER READING	55

LIST OF FIGURES AND TABLES

FIGURES

	Page
1.1 Air Bubbles Migrate to Vibrator	6
1.2 Provision of Adequate Casting Space	6
1.3 Vibration of the Formface	8
2.1 Progressive Reduction in Pressure	11
2.2 Formalised Pressure Diagram	12
2.3 CIRIA Interpretation of Heights	12
2.4 Example of Discharge Height Greater than Pour Heights	13
2.5 Concrete Pressures Developed in Vertical Pours	16 to 21
3.1 Example of Coding System for Plywood Formwork.....	23
3.2 Identification Code for Standard Plywood Formwork Construction	24 & 25
4.1 Installation of Filler Tapes	40
4.2 Surface Tapes	41
4.3 Face Step.....	41
4.4 Screw Fixing through the Formface.....	42
4.5 Screw Fixing from the Backface	42
4.6 Joining Adjacent Forms.....	43
4.7 External Column and Wall Joint Detail	43
4.8 Internal Wall Joint Detail	43
4.9 Groove at Construction Joint	44
4.10 Increase in Pressure at Stopends	44
4.11 Stiffening the Bottom Edge of the Form	44
4.12 Form Base Joint for Higher Quality Finish	45
4.13 Grout and Moisture Loss at a Construction Joint	45
4.14 Wall Form to Wall Construction Joint	45
4.15 Snap Ties.....	45
4.16 She Bolt	46
4.17 Bar Tie.....	46
4.18 He Bolt	46
4.19 Use of a Stripping Band	47
4.20 Metal Cover Strips	47
4.21 Backpropping Band with Metal Strips	47
4.22 Stripping Band and Backpropping Band on Soffit Forms	47
4.23 Accommodating the Tolerances at the Beam Edge	48
4.24 A Formwork Storage Rack	49

TABLES

1.1 Summary of Suitable Surface Characteristics for Overlaid Plywood Formwork	7
1.2 Safe Minimum Bending Radii for Bending of Plywood	9
2.1 Design Loads on Soffit Formwork (kPa)	10
2.2 Values of Co-efficient C2	12
3.1 Basic Working Stresses and Elastic Moduli of Formwork Plywood (MPa).....	22
3.2 Section Properties, Moment of Inertia (I) and Section Modulus (Z) for Standard Plywood Formwork Constructions	26
3.3 to 3.8 Allowable Concrete Pressures for Formwork Plywood.....	28 to 39

PLYWOOD IN CONCRETE FORMWORK

INTRODUCTION

The last thirty years has seen plywood prove its worth in formwork construction against increasingly stringent requirements for load carrying capacity and surface quality. Faster construction methods and more vigorous concrete placing techniques have more than doubled the pressures it must resist. The demands for the concrete surface to have visual qualities in addition to the structural function of the concrete member have been answered with plywoods with improved surface characteristics and reliable standardised design properties.

Plywood formwork has been used for projects as diverse as silos, high-rise buildings, the Sydney opera house, freeways and power stations.

One of its principal attractions is its workability. It can be sawn, drilled, routed and bent to tight curves and fixed in place with a variety of standard fastenings. This workability together with the range of shapes that large plywood sheets can economically achieve, can be said to have extended the frontiers of concrete design.

Ever improving manufacturing techniques together with the PAA's Total Quality Control (TQC) program give the user confidence that PAA branded plywood is a product of consistent reliable strength, stiffness and dimensional stability.

Plywood's cross laminated structure gives great resistance to impact loads. For those thankfully rare cases where overloads occur, the material characteristic of structural plywood to safely withstand short-term overloads due to the micro-structure of the wood is a reassuring safety feature.

These matters are largely constructional and structural. In addition plywood's large sheet sizes and their surface quality are also significant factors in the achievement of consistent off-form concrete quality.

Many factors control the quality of the surface of off-form concrete. Amongst these are the features of the concrete shape, the quality and disposition of the reinforcement, the quality of the formwork, the quality of the concrete used, the placing techniques and the final acts of stripping, curing and protection. One important aspect of formwork construction is the quality of the plywood panels in the formface and the techniques adopted in their use.

This manual seeks to explain and amplify the essentials for correct plywood selection and use so that the formwork construction can play its part in the group of construction procedures that must all be optimised if success is to result.

This manual has a wider application than just the specialised area of architectural concrete. It is also intended as a guide to the selection and use of suitable plywoods for general formwork construction.

Requirements of the Australian Standard AS3610

The Australian Standard, AS3610 — FORMWORK FOR CONCRETE, is a "performance" document. It gives requirements for the end product, the concrete, and thus formwork is merely part of the means to that end which must be so arranged that the end performance requirements can be achieved. The Standard's performance requirements include the loads from the concrete and the construction activity, the safety of the workers, the accuracy of the concrete alignment and the potential to achieve quality of the concrete surface.

This manual is intended to be compatible with the Standard and the achievement of these performance goals.

This is not to imply that the failure of the concrete to meet its specified requirements is automatically the responsibility of those associated with the formwork. Other parties to the

completion of the concrete work may be at fault. For example, steel fixers or concretors may have damaged the formface, or the forms may have been overloaded by impact or excessively fast concrete placing.

- cl. 2.3 Project Documentation.

This clause lists the aspects that the project documents must cover so that the formwork designer and the formwork constructor are aware of all restrictions on their activities and the quality to be achieved. These include concrete surface requirements given within the guidelines of Section 3.

- Section 4 Formwork Design.

This Section covers the loading, design methods, construction considerations and documentation aspects of the design of the formwork. The subclause significant to this manual is cl. 4.5.5.4 which refers to the permitted tolerances for concrete features affected by the plywood formwork such as deflection and surface undulations which are given in Table 3.4.2.

- Section 5 Formwork Construction.

This Section covers the form structure, stripping and the evaluation of the completed concrete work. A significant subclause is cl. 5.4.1.6 which requires the formwork to be surfaced with a material compatible with the achievement of the specified concrete surface class.

This manual is compatible with this approach and aims to give guidance on the achievement of performance goals specified in AS3610.

Before proceeding to these detail matters there are aspects of formwork efficiency and principles of construction and site use that are relevant to the general design of forms.

The Quest for Efficiency

Efficiency involves all matters that relate to the time, cost and quality of the project. Every formworker aims for greater efficiency, mainly because it leads to greater profits. Also, as formwork can represent up to 60% of the total cost of the concrete structure, this efficiency can reduce total building costs.

The decisions that control formwork efficiency are rarely under the control of the formworker. In fact, the formworker seldom has any contact with the building designer or the project manager during the design phase and is presented with a fait accompli. The formwork arrangement is therefore almost always dictated by the building design and the circumstances which arise from the construction documents and builder's decisions. **The quest for efficiency must therefore entail closer liaison between the formwork designer and the building designer and a better understanding of the requirements for efficient formwork design by both building designer and builder.**

Building designs which minimise labour and waste in the formwork system significantly reduce the final building costs. Whilst building layouts and dimensions are generally dictated by the building site and other constraints such as car parking requirements in high-rise structures, optimisation of structural layouts to best use standard plywood panel sizes must be considered if optimal reinforced concrete structures are to be achieved. Chapter 4 gives details related to formwork construction for ease of stripping, and hence maximum re-use of plywood, that can be incorporated into the design optimisation process.

The construction documents dictate the shape of the concrete, the quality and accuracy required of its surface (44), and give limitations on some formwork activities, e.g.

stripping. The builder controls the construction sequence and pace, methods and capacity of hoisting, size of concrete pour and the pouring method. The formworker must work within these restrictions so many of which have been decided without regard for the efficiency of formwork construction.

The designer of the structure should understand the building process. Wilson (56) states:

"The degree of refinement that can be achieved with concrete must, of course, be appreciated and it is the duty of the designer to make himself fully conversant with the practical limitations of the material and design accordingly."

This appreciation must include the effects of design decisions on the time, cost and quality of the formwork.

In a multi-storey building the specified stripping times can affect the number of sets of forms required and thus their number of reuses on the job. Guidelines on multi-storey procedures and cycle times can control tableform sizes and use.

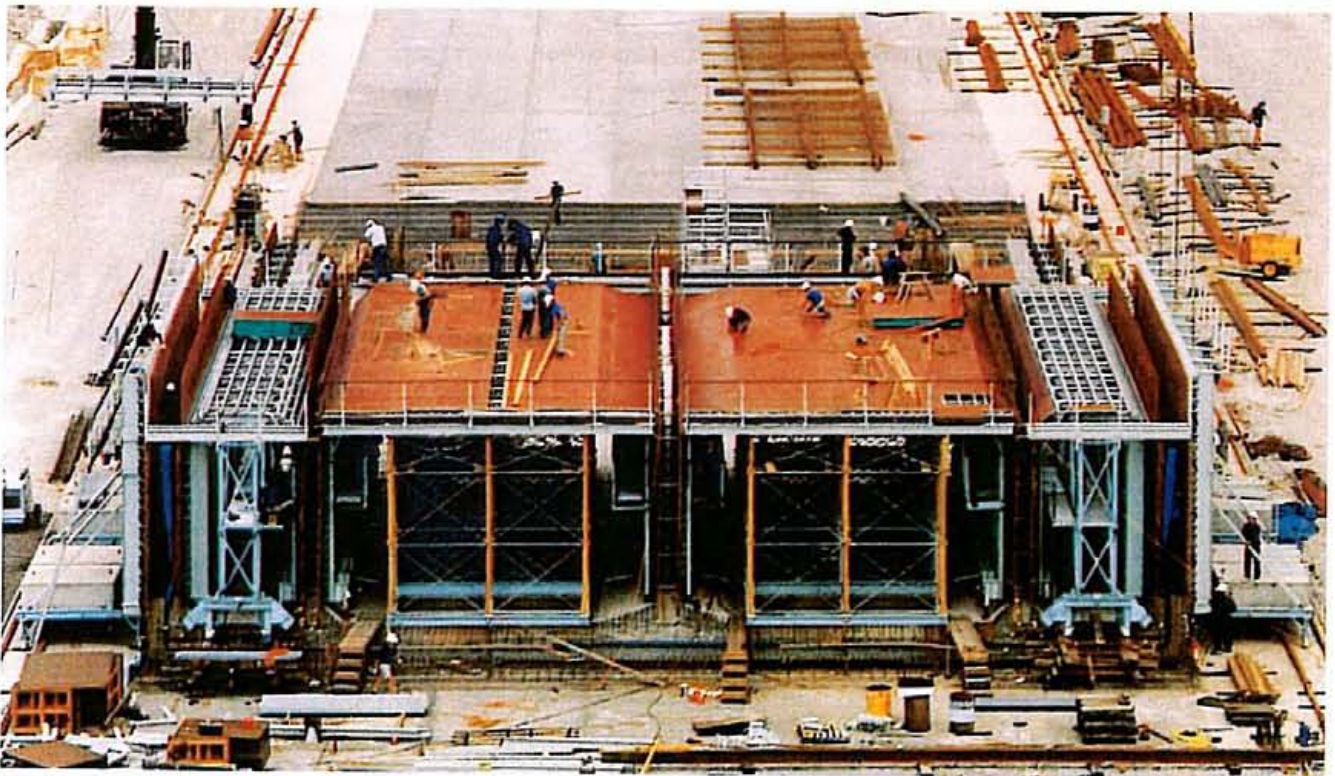
Every use of a form results in at least a small deterioration of its quality (36). When an unnecessarily high standard of surface finish is specified for repetitive work this can result in high formwork maintenance costs and sometimes refacing of the form. Further, the specification must give the requirements as precisely as possible. "...the designer cannot

properly expect his intentions to be fully carried out unless the requirements are clearly specified." (56)

Rationalised dimensions, simple shapes and repetition of shape both within a pour and in different pours, can markedly reduce costs and speed the project (32). Reduced construction time, in itself, leads to lower total costs through reduced site management costs and financing charges.

The design of the formwork is constrained by many builder decisions and equipment limitations. The Critical Path plan dictates targets for the pace of work, cycle times and on-site resources, workers, equipment and material. The size of formwork units is affected by the hoisting capacity, e.g. crane size and reach, hoisting methods e.g. formwork hoist, crane(s), and the available access to the work area. Multi-storey buildings all have to be screened. As a result access is limited and so are the sizes of formwork units such as tableforms. Cantilever platforms restrict unit size and weight and can force expensive procedures like folding tableforms and special transporters.

This discussion has concentrated on formwork for multi-storey buildings but similar situations can happen on all projects. Arbitrary decisions made by the builder, without consultation with the formworker can result in needless loss of opportunities to optimise time, cost and quality.



*Precast reinforced concrete sections for the Sydney Harbour Tunnel, formed in Plywood Formwork.
Courtesy Transfield – Kumagai.*

Formwork Design and Construction

There are a number of fundamental principles that apply to all formwork. These relate to appropriate materials and workmanship, optimisation of construction for ease of erection and stripping, and proper care and maintenance of formwork. All these matters have the one aim; the achievement of the required quality in the shortest time and at the least cost.

Reaching a decision on the appropriate formwork plywood to meet the required surface characteristics is covered in Chapter 1. Loads and pressures for formwork design are given in Chapter 2. Chapter 3 describes the PAA plywood identification system, types and grades of plywood with details on selecting a plywood. Finally Chapter 4 gives some very practical advice on the construction and care of forms so that you get the best and most economical use out of your plywood.

CHAPTER 1

PLYWOOD SELECTION FOR SURFACE FINISH CONTROL

Three features are required for a high quality concrete surface: accuracy or alignment to suit its intended use, absence of excessive surface voids and minimum colour variations. When the higher quality concrete surfaces, Class 1 or 2, are specified, to the Australian Standard AS3610, the quality of the formwork surface required to give it the potential to play its part in achieving concrete quality also increases.

At the other end of the scale Class 4, for applied finishes, and Class 5, for concealed surfaces, have no colour requirements and only structural and alignment limitations apply.

To achieve quality architectural concrete, Class 1 or 2, the factors of formwork construction, placing and consolidation of the concrete, stripping, curing and protection of the concrete surface must all be efficient and effective. Shilstone (45) gives a high rating to the selection of the formface material. Of equal importance is the way in which the concrete surface is affected by other actions such as placing, vibrating, etc. So that the significance of these actions can be appreciated the causes of voids and discolouration should be understood.

Surface voids, called blowholes, are the result of bubbles of entrapped air being located at the formface in the fluid concrete as it sets. There are a number of possible causes:

1. The ingredients of the concrete mix. This can involve the proportions of the mix or the use of unsuitable materials, (11), (42), (49).
2. The use of an unsuitable release agent, (11). This can also cause discolouration.
3. The concrete placing and consolidation techniques. This can be the fast dumping of concrete in deep layers or incorrect, inadequate or ineffective vibration, (11), (37), (42), (49).

Where formwork with an absorbent surface, e.g. unsealed timber, is used the surface voids are always minimal. This is usually accompanied by extensive dark discolouration which is caused by moisture loss resulting in ineffective hydration of the cement at the surface.

When water passes into the formface the water/cement ratio of the concrete at the formface is reduced. Further, to re-establish moisture equilibrium, some water migrates through the mix near the formface and in doing this carries cement grains with it. This further lowers the water/cement ratio which results in poor cement hydration at the face, weak concrete and dark colours. Variable absorption rates are typical of natural materials such as timber and result in wide variation in the dark "hydration stained" areas of the concrete face.

To achieve the aim of uniform colour the formface absorption must be low and uniform. For the elimination of blow holes it is necessary to use the appropriate concrete, the correct release agent and effective concrete placing techniques. In summary the placing techniques which have been found to be effective are:

1. Increase the pour height where possible, up to 5 metres, to increase the pressure.
2. Increase the vertical pouring rate to not less than 2 metres per hour.
3. Keep the immersion vibrator at least 50mm from the formface as the vibrator attracts entrapped air as depicted in Figure 1.1 (51). With the provision of an adequate casting and vibrating space of at least 100mm width, a wall with one architectural concrete face must be at least 150mm thick and a double faced wall 200mm as shown in Figure 1.2.

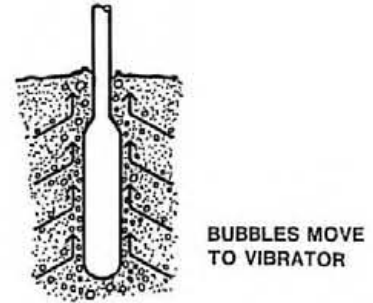


Figure 1.1 Air Bubbles Migrate to Vibrator.

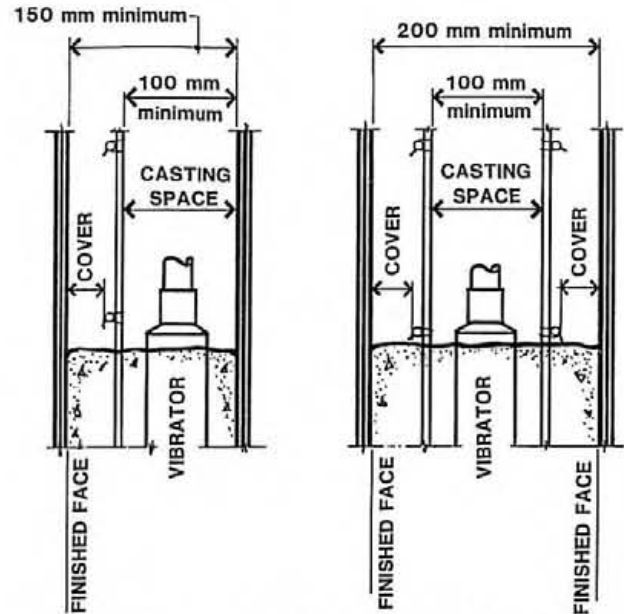


Figure 1.2 Provision of Adequate Casting Space.

4. Do not use an external vibrator mounted on a vertical form as it will attract blowholes to that surface.
5. Use the correct vibrating technique. See Chapter 4.

Surface Characteristics of Plywood Formwork

It is impossible to guarantee a number of re-uses that will be obtained from any formply product and still meet a specified surface finish. There are simply too many factors outside of the control of the supplier that can cause the surface of the plywood to be downgraded. Damage by vibrators, stripping abuse, incorrect installation and storage, lack of a suitable release agent and failure to reseal edges after cutting are a few examples of such factors which contribute to surface damage.

However, recommendations can be made on the type of formwork plywood and surface characteristics that are most likely to enable the production of the required concrete surface finish provided it is correctly treated and maintained. **For Class 1 and 2 work the correct selection of formwork plywood is able to be confirmed by the test panels which are a mandatory requirement of AS3610.**

Plywood is available unsurfaced, often called rawform, or surfaced with a material such as phenolic type impregnated paper often called plastic faced. If the raw plywood formwork is not effectively sealed by application of suitable pretreatment and release agents, moisture, from the fluid concrete, will penetrate the outer or surface veneer resulting in thickness swelling. As timber is a natural material the face veneer thickness swelling will be variable and will depend

on factors such as evenness and closeness of texture of the timber species, quality and veneer thickness. The variable thickness swelling in the unprotected surface veneer can produce a pronounced grain pattern on the concrete with associated hydration staining.

Even with the application of sealants to the raw plywood, the potential for this problem to occur is such that the use of untreated plywood is not recommended for formwork where a high quality concrete finish is required.

For best results the plywood should have a presealed surface, site applications of a suitable release agent to limit moisture penetration and outer veneers of a quality, texture and thickness selected to minimise the swelling that might result from the very small amount of moisture that penetrates past the release agent and the surface overlay.

Despite heavy facings of phenolic type impregnated paper a small amount of moisture absorption will occur leading to slight swelling of the face veneer which can show on the concrete surface as grain imprint. If the provisions of AS3610, making test panels mandatory for Class 1 and 2 and an option for Class 3, are adhered to, the acceptability of any grain imprint can be assessed by inspection of the test panel at its evaluation.

To keep formface absorption and the resultant grain imprint and hydration staining to acceptable levels for Class 1 and 2 concrete surfaces, three suitable combinations of plywood surfacing and face veneer are:

1. Plywood surfaced with a phenolic type impregnated paper of minimum paper weight 40 gsm and total weight 120 gsm (40/120). The face veneer should be solid (i.e. all holes and splits should be filled), close textured and have a maximum nominal veneer thickness of 1.3mm.
2. Plywood with a face veneer as described in 1, above, and surfaced with a liquid finish to give a durable, wear resistant, non-absorbent finish.
3. Plywood surfaced with a phenolic type impregnated paper of minimum paper weight 60 gsm and total weight 150 gsm (60/150). The face veneer shall be solid and have a maximum nominal thickness 1.6mm or 2.5mm when unsanded or sanded respectively prior to overlaying.

Class 3 concrete surfaces can also have colour control specified so a sealed surface plywood is required. Any of the plywoods defined for Class 1 or 2 are suitable. However the colour consistency and surface characteristics are less stringent. Two combinations of plywood surfacing and face veneer are suitable:

1. Plywood surfaced with a phenolic type impregnated paper with a minimum paper weight of 30 gsm and total weight of 90 gsm (30/90). The face veneer should be solid and of maximum nominal thickness 2.5mm.
2. Plywood surfaced with a phenolic type impregnated paper with a minimum paper weight of 40 gsm and total weight of 120 gsm (40/120). The face veneer should be solid and of maximum nominal thickness 3.2mm.

Class 4 is for surfaces hidden from general view or those that are to have thick applied finishes, e.g. tiles, render. Although no colour control can be specified extensive hydration staining should be avoided as poor hydration means weak concrete and ineffective adhesion for the applied finish. The plywood recommended for Class 3 is quite suitable. Alternatively an unsurfaced plywood can be suitable provided:

The plywood is well sealed with pretreatment and further treatment before use with a suitable release agent and the face veneers are solid and of maximum nominal thickness of 2.5mm.

Class 5 work has the lowest standard of requirements. For work of this standard unsurfaced plywood is quite suitable. For adequate release at stripping there must be pretreatment with a release agent followed by further applications prior to

use. The plywood should have faces that meet the minimum requirements for veneer Quality C as specified in AS2269 Structural Plywood and be of maximum nominal thickness 3.6mm. Quality C veneers described in AS 2269 may contain small open defects such as splits and holes.

The recommendations given above refer to new plywood or plywood in the as-new condition. Plywood for formwork for all classes of concrete surfaces must have edges that are initially sealed and resealed after cutting.

Where phenolic paper overlay is to be used, which is normally the case, the recommendations for the plywood formwork characteristics for Classes 1, 2 and 3 concrete surfaces are summarised in Table 1.1.

TABLE 1.1: SUMMARY OF SUITABLE SURFACE CHARACTERISTICS FOR OVERLAID PLYWOOD FORMWORK

Class	Minimum Phenolic Overlay Quality	Maximum Face Veneer Thickness (mm)
1 & 2	40/120 60/150 60/150	1.3 1.6 2.5 (sanded)
3	30/90 40/120	2.5 3.2

Textured Plywood Surfaces

Standard plywood products are available with a range of textured surfaces suitable for imparting architectural character to off-form concrete. The most commonly available of these products are simply grooved and give the effect of machined timber boards. Another standard product has a textured rough sawn surface which gives the appearance of rough sawn timber. This plywood can be grooved or may be continuously textured without grooves.

Raw plywood formwork surfaces may be sandblasted or etched with chemicals to produce a range of architectural effects.

Where plywood surfaces are mechanically or chemically treated to impart architectural features, removal of part of the outer veneer weakens the the plywood. Allowance for this must be made in strength and deflection calculations.

The use of unsurfaced plywood with a thick face veneer for architectural concrete requires close attention to pretreatment to seal the surface followed by multiple (not less than 3) applications of release agent before each use.

Other Formface Surfacing

Plywood can be surfaced with a range of other materials and coatings such as aluminium, epoxy, polyurethane and glass reinforced plastics (GRP) to provide formwork faces to meet a range of end use conditions and re-use requirements.

GRP Facing

When a high quality formwork surface is required for a very large number of uses, GRP, commonly called fibreglass, facing of the plywood formface, even though it is costly, can offer many advantages. GRP facing gives a hard-wearing smooth surface with extremely low moisture absorption. With care, up to one hundred uses can be obtained before any maintenance is needed, and this is usually only a simple sanding back of the surface and recoating with resin. For cases of physical damage to the formface, more extensive repair can involve cutting out the affected section and re-glassing and coating. In short, with care and maintenance, the limit to the useful life of the form is controlled by the durability of the formwork structure, not the formface.

The success of the GRP surfacing of plywood is dependent on the correct selection of materials and skill in their application. Each organisation that undertakes this work appears to have its own particular variations on material selection and application. However, some general guidelines have been supplied by resin manufacturers.

1. The surface ply should be of a species possessing a low resinous content so that the GRP keys in well. If a tropical hardwood type surface ply is used then surface priming with resin will not be needed.
2. The surface of the plywood must be clean, dry and free from pollution.
3. Different formulations of resins are available to suit different lengths of intended service life. Life expectancy of the plywood formwork surface, under the projected conditions of use, should be discussed with the resin supplier so that an appropriate selection is made.
4. The type of GRP reinforcement will relate to the size of the formwork and the loads it must carry. Under normal circumstances Chopped Strand Mat with a surface tissue are adequate with raw plywood formwork. Woven Rovings are sometimes used to increase the strength using two layers of Chopped Strand Mat to sandwich the woven rovings.
5. The quality of the surface finish will be a product of process adopted and the care taken in its finishing.

Fibreglass faced raw plywood formwork can give a high quality, long-life formface, but it is not a process for inexperienced site workers. It requires specialist attention and it is recommended that the work be entrusted to only experienced operators with experienced organisations.

Rigidity of the Formface

The calculations related to selection of plywood with regard to strength and rigidity are covered in Chapter 2 "Determination of Loads and Pressures" and Chapter 3 "Plywood Selection — Structural Considerations". This section is concerned with the matters that influence the need for rigidity in the formface.

The selection of plywood to satisfy requirements for rigidity is mainly concerned with two matters: vibration and deflection. For curved formwork there is the added limitation of the relationship of the maximum practical plywood thickness for the radius of curvature.

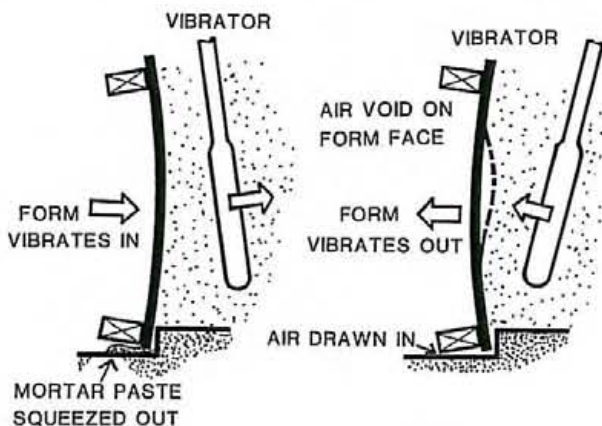
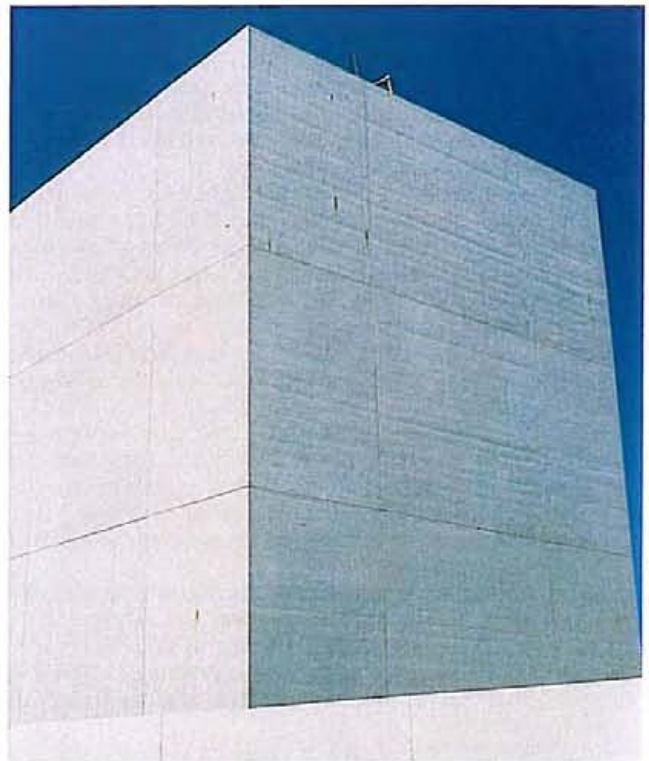


Fig 1.3 Vibration of the Formface.

Vibration of the formface can occur under the influence of extensive vibration or the use of high powered immersion vibrators as shown in Figure 1.3. The pulsing action in the formface causes dispersal of the bleedwater at the form and concrete interface. These resultant variations in the water/cement ratio give surface colour graduations. When the pulsations happen near the base of the wallform the pumping action can suck air into the form and concrete

interface further increasing the hydration staining, (28). Unfortunately, there is no research available which can give definitive guidance on plywood selection for vibration. The formworker can only exercise caution and use the stiffer plywoods where close colour control is required.

Elastic deflection, on the other hand, can be calculated. The total formwork system deformation comprises three factors which may be cumulative: formface deflection, deflection and movement (e.g. joint take-up) of the formwork structure and errors in fabrication. The design data provided in Chapter 3 only considers formface deflection between supports. Framing deflection, joint movement and fabrication errors are outside the control of the formwork plywood supplier. Thickness tolerances in plywood formwork are also provided in Chapter 3. **Where higher quality concrete surfaces are specified, i.e. Class 1 or 2. The Project Designer has the option to limit the formface span and the direction of those spans.** This provides a chance to avoid the phenomenon variously called "corrugations" or "quilting".



Corrugations due to overdeflection of formply can be avoided by proper design.

Where light, natural or artificial, shines across such a surface at a very flat angle these deflections become very obvious. The permitted, and therefore calculated, deflection is related to the specified span with a maximum of 2mm or 3mm for Classes 1 and 2 concrete respectively. The Project designer cannot specify limits on formface span for Classes 3, 4 or 5. Formface deflection is however specified in AS3610 for Class 3, 4 and 5 concrete.

Where applicable, the deflection calculated for the formface is added to the other sources of deformation of the formwork structure. This total plus an allowance for errors in construction must not exceed the maximum permitted deviation, the tolerance.

The final parameter that guides plywood selection can be the need for a curved surface. Table 1.2 sets out the thickness limitations for plywood which is to be curved.

Exterior bonded plywood can be bent with the application of steam or hot water where the bend is too severe for it to be done in the dry state. It must be remembered that plywood must be dry to be glued and if it has been bent with steam or water it should be allowed to dry thoroughly before endeavouring to glue it.

TABLE 1.2: SAFE MINIMUM BENDING RADII FOR BENDING OF PLYWOOD WITH A MOISTURE CONTENT OF 10% FOR PLYWOOD BETWEEN 4mm AND 12mm THICKNESS AT ROOM TEMPERATURE WITH TWO DIFFERENT SAFETY FACTORS

Plywood Thickness (mm)	Minimum Bending Radius for Expected Reject (face veneer cracking) Rate of Approximately 5%. (Safety Factor 2)			
	Hardwoods		Softwoods	
	Axis of Bend Parallel with Grain (mm)	Axis of Bend Perpendicular to Grain (mm)	Axis of Bend Parallel with Grain (mm)	Axis of Bend Perpendicular to Grain (mm)
4	254	177	406	254
6	406	254	660	431
9	711	457	1117	762
12	1117	711	1778	1219

Plywood Thickness (mm)	Minimum Bending Radius if only Low Reject (face veneer cracking) Rate can be Tolerated. (Safety Factor 3)			
	Hardwoods		Softwoods	
	Axis of Bend Parallel with Grain (mm)	Axis of Bend Perpendicular to Grain (mm)	Axis of Bend Parallel with Grain (mm)	Axis of Bend Perpendicular to Grain (mm)
4	381	266	609	381
6	609	381	990	584
9	1066	685	1676	1143
12	1676	1066	2667	1828

Derived from graphs in "Bent Wood Members", United States Department of Agriculture, Forest Service, Forest Products Laboratory, Madison 5, Wisconsin No. R1903-3 (1951).

Release Agents

It should be noted that release agents are recommended in all cases. Apart from their value in improving the impermeability of the form surface, they also prevent adhesion of the formwork to the concrete surface and maximise the possible re-use of the formwork. The topic of release agents and their use is covered in more detail in Chapter 4.

The occurrence of discolouration through hydration staining is a serious defect. However, it is believed by some builders that if a concrete surface is to have a later treatment such as sandblasting or bush-hammering this can be relied on to get rid of the discolouration. As a result of this belief a lower than recommended grade of formwork face is often used or less care is taken with the formwork surface

preparation. But hydration staining is not just skin deep. The physical removal of part of the concrete surface is not cause for the relaxation of the standards of materials or workmanship.

Summary

Before proceeding to calculate design pressures and actually select a suitable plywood the formwork designer must decide:

1. What are the surface requirements of the plywood?,
2. What is its span?,
3. What is its maximum deflection?, and
4. If it is curved, what are the thickness limits?

CHAPTER 2

DETERMINATION OF LOADS AND PRESSURES

Horizontal Formwork

Soffit formwork, used in the construction of horizontal decks, serves three distinct functions. In the beginning the formwork deck is a material storage and working area during its own construction and while reinforcement and services are being installed. Next it is a mould for the fluid concrete as well as a working area for the concretors. Finally it provides support for that concrete as it matures and for traffic and stacked materials that may be placed on the concrete.

The Australian Standard AS3610 defines these different

functions as Stages 1, 2 and 3. The loads stipulated in the Standard relate to activities observed on sites. For Stages 1 and 3 these are live loads, workers and their tools, at 1.0 kPa, and stacked materials, usually formwork components but sometimes materials for later trades, at 4.0 kPa. The Standard, in cl. 4.7.1(d), permits specific areas to be designated and designed to carry stacked materials, (AS3610 cl. 4.7.1(d)). Also the extent of the stacked material load may be limited by the Project Designer, (AS3610 cl. 2.3(b)).

During pouring, Stage 2, the live load is also 1.0 kPa and there is an allowance for the mounding of concrete at 3.0 kPa. This can occur due to the rapid dumping of concrete from a kibble bucket or the deliberate or accidental prolonged discharge from a concrete pump in one position. This load is only temporary and AS3610 rates it as being of 5 minutes duration. The live load and the mounding load are not applied simultaneously.

In summary the loads to be allowed for in the design of the plywood formwork, in accordance with AS3610, are given in Table 2.1.



Soffit formwork at the stage 1 phase of the construction cycle.

TABLE 2.1: DESIGN LOADS ON SOFFIT FORMWORK (kPa)

		Stage 1	Stage 2	Stage 3
Plywood wt.	(G)	0.1	0.1	0.1
Concrete wt.	(Gc)	nil	to be calc.	to be calc.
Mounded concrete	(Qc)	nil	3.0	nil
Live load	(Q _{uv})	1.0	1.0	1.0
Stacked material (in designated areas)	(M)	4.0	nil	4.0

The full stacked material load in Stage 3, (M3), where permitted, would rarely act on the plywood formwork face. Usually by the time materials are stacked on the concrete deck, if it is a few days after the pour, the slab will have developed sufficient flexural strength to span the short distance between the formwork joists. Therefore the 4.0 kPa

requirement for stacked material in Stage 3 can usually be ignored in the design of soffit plywood formwork. For the same reason the live load, (Q_{uv}), will only act on the plywood in the first few days after the pour. Also further increases in load from multi-storey activity will act on the slabs and the formwork supports but not the plywood.

EXAMPLE 2.1: PRESSURE ON HORIZONTAL FORMS

Determine the design pressure exerted on soffit formwork by a 200mm thick reinforced concrete slab. Refer to Table 2.1.

Note that Equations 1 and 6 of Table 4.5.2 of AS3610 apply and the reduction factor is 1.0.

1. STAGE 1.

Plywood wt (G)	=	0.1 kPa
Concrete (Gc)	=	0
Live load (Q _{uv})	=	1.0 kPa
TOTAL		<u>1.1 kPa</u>

In designated areas for stacked material

Stacked material (M1)	4.0 kPa
TOTAL	<u>5.1 kPa</u>

2. STAGE 2.

Plywood (G)	=	0.1 kPa
Concrete (Gc)	=	$(\rho h/100 = 2500 \times 0.2/100)$
		where ρ is the concrete density — usually 2500 kg/m ³ and h is the concrete thickness in metres (m)
	=	<u>5.0 kPa</u>

Live load (Q _{uv})	=	<u>1.0 kPa</u>
------------------------------	---	----------------

or

Concrete mounding (Qc)	=	<u>3.0 kPa</u>
------------------------	---	----------------

The maximum load (from stage 2) becomes:

$$0.1 + 5.0 + 3.0 = \underline{8.1 \text{ kPa}}$$

3. STAGE 3.

Plywood (G)	=	0.1 kPa
Concrete (Gc)	=	5.0 kPa
Live load (Q _{uv})	=	1.0 kPa
TOTAL	=	<u>6.1 kPa</u>

Note that the load on the plywood is of very short duration. Under most circumstances the weight of stacked materials can be neglected at Stage 3 for plywood design.

The formwork must be designed for Stage 2

$$= \underline{8.1 \text{ kPa}}$$

Vertical Formwork

Vertical formwork used in the construction of walls and columns is also subject to three stages of loading. However loads for Stages 1 and 3 are not quantified in the Standard as they usually only comprise the effects of hoisting, alignment, stripping and storage. Stage 2 during the concrete placement imposes lateral pressures on the formface.

Initially the pressure is purely hydrostatic with the pressure increasing with the depth of fluid concrete. However in a short time the initial set of the concrete occurs and the pressure relaxes. Figure 2.1 shows the progressive reduction in pressure. As this relaxation is related to the time for the initial set of the particular concrete to occur it follows that the faster the concrete is poured the less the pressure will relax. With a very fast pour, which is now quite common, the pressure may remain hydrostatic throughout the pour.

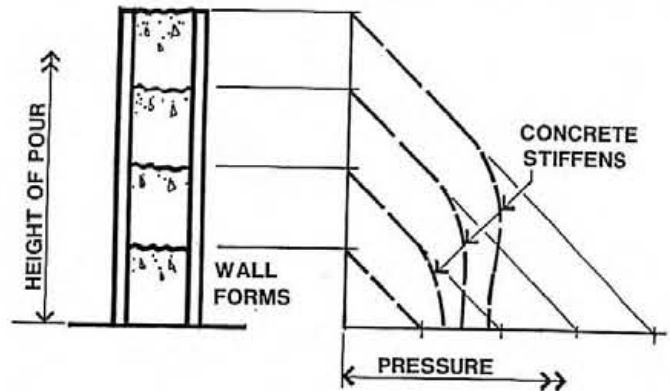


Figure 2.1 Progressive Reduction in Pressure

Although some work has been done on the theoretical determination of lateral concrete pressure from fluid concrete (53), more accurate results have been obtained from data collected on sites at actual pours. AS3610 uses the work from one such study, CIRIA Report 108 (6).

Two formulae are provided for the determination of a design value for maximum concrete pressures in vertical pours. The first mathematical expression given in Equation 1 takes account of the concrete density, the vertical rate of pouring, the pouring height 'H' (which may be the top of the pour 'h' or higher), the cementitious materials and admixtures of the mix, the concrete temperature and the plan dimensions of the concrete member being poured. The second mathematical expression, given in Equation 2, determines the maximum pressure from the full hydrostatic head. The lesser of the two 'maximum' values, at the various height positions, is adopted for design at that point. These are:

Equation (1)

$$P_{MAX} = \frac{\rho}{100} [C_1 \sqrt{R} + C_2 K \sqrt{(H - C_1 \sqrt{R})}] \text{ kPa}$$

Note: if $(H > C_1 \sqrt{R})$ this equation cannot apply because the square root of a negative number cannot be calculated. In this case only equation (2), applies. This formula determines the location of the vertical line of the pressure envelope in Figure 2.2.

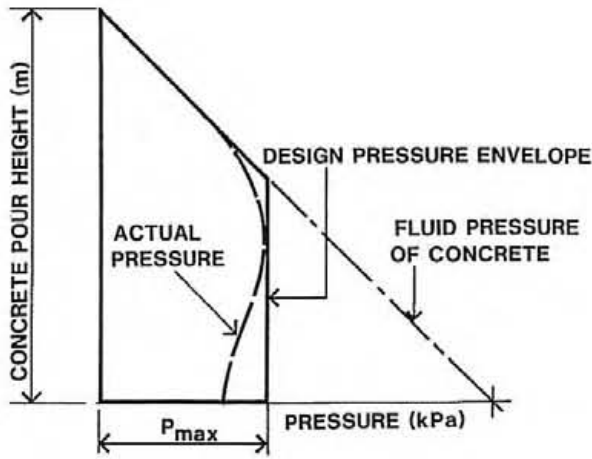


Figure 2.2 Formalised Pressure Diagram.

Equation (2)

$$P_{MAX} = \frac{\rho h}{100} \text{ kPa}$$

where

- P_{MAX} = maximum concrete pressure (kPa)
- ρ = wet density of the concrete, kg/m^3
- C_1 = coefficient dependent on the plan size of the concrete member
 - = 1.5 where the plan width and breadth of the section are both less than 2 metres
 - = 1.0 for all other cases
- R = vertical rate of pour in m/hr
- C_2 = coefficient given in Table 2.2 for the constituent materials of the concrete
- T = concrete temperature at placement, $^{\circ}\text{C}$
- K = temperature coefficient = $\left[\frac{36}{(T + 16)} \right]^2$
- H = vertical form height, (m)
(this represents the height of discharge of the concrete and can be the top of a form to be partially or fully filled)
- h = height of poured concrete (m)

It will be noted that the factor C_1 has two values. These relate to the plan dimensions of the vertical element being poured which can influence the concrete pressures.

It can readily be seen on site that the concrete pressure in small walls and columns is increased as the vibrations reflect off the opposing faces when the concrete is being consolidated within a small area. For these cases the coefficient C_1 is taken as 1.5; a considerable increase in pressure. Where one of the plan dimensions exceeds 2 metres, for example in a wall, C_1 becomes 1.0. This models the situation where there is no effective reflection of vibration and hence no increase of pressure.

The cementitious materials, and the admixtures of the mix, control the selection of the value of the coefficient C_2 as given in Table 2.2.

TABLE 2.2: VALUES OF COEFFICIENT C_2

Cementitious materials and admixtures	C_2
Type GP, HE, SR cement	0.30
Type LH cement	0.45
Type GB cement	0.45
Blends containing >40% flyash or >70% slag	0.60
For all cementitious types the value of C_2 shall be increased by 0.15 where either —	
(a) a retarding admixture is used in the concrete; or	
(b) a superplasticizing admixture is used in the concrete; or both.	

Two symbols are given for height, 'h' and 'H'. The CIRIA interpretation for these terms is illustrated in Figure 2.3.

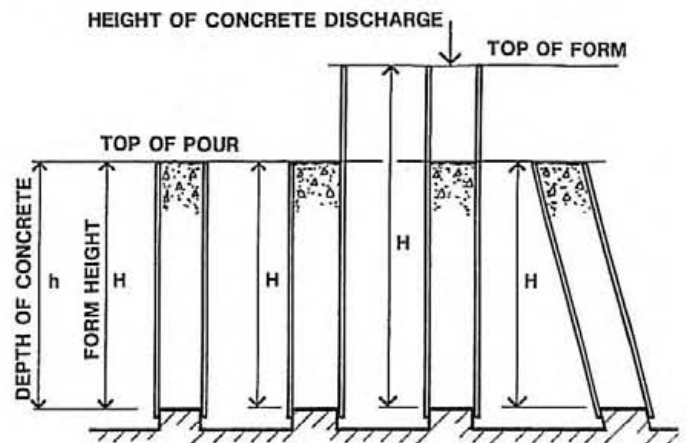


Figure 2.3 CIRIA Interpretation of Heights.

They enable the calculation of the pressure for those cases where the height at the point of concrete discharge (bucket mouth or pump nozzle) is greater than the height of the top of the intended concrete pour, e.g. when a 5m high wall form is being filled by bucket discharge at the top, but the form is only to be filled to a height of 3m. This is shown in Figure 2.4. At the commencement of the pour the concrete fell 5m and at the completion of the pour the concrete was still falling 2m. Therefore, there was an impact effect increasing the concrete pressure, even at the final surface. However, AS3610 states that the resulting maximum pressure in this case will not exceed the full fluid pressure for the pour height of 3m. Example 2.4 in this Chapter calculates the pressures for this case.

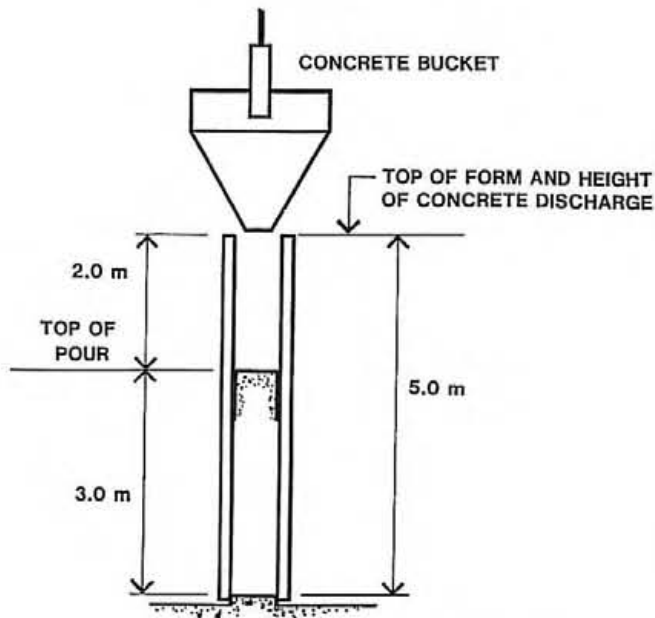


Figure 2.4 Example of Discharge Height Greater than Pour Height.

EXAMPLE 2.2

A 300mm thick, 12.2m long, 3.0m high wall is to be poured with a pump having a delivery rate at the nozzle of 20m³/hr. The concrete uses Type FA cement, has no retarders or superplasticizing admixtures, its density is 2400 kg/m³ and the concrete temperature is anticipated to be 25°C.

As the plan length is greater than 2m, $C_1 = 1.0$ and from Table 2.2 $C_2 = 0.45$

The vertical rate of pour equals the concrete delivery rate divided by the plan area of the concrete member.

$$R = 20.0 / (0.3 \times 12.2) \\ = 5.46 \text{ m/hr}$$

The temperature coefficient:

$$K = [36 / (25 + 16)]^2 \\ = 0.77$$

Checking to see if equation (1) applies (i.e. $C_1 \sqrt{R} < H$):

$$C_1 \sqrt{R} = 1.0 \times \sqrt{5.46} = 2.34 < 3.00 \text{ so use eq. (1)}$$

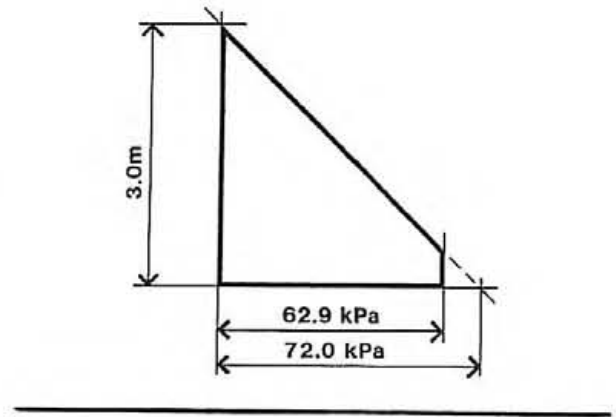
Using eq. (1)

$$P_{MAX} = 2400 / 100 [(1.0 \times \sqrt{5.46}) + 0.45 \times 0.77 \\ \sqrt{(3.0 - 1.0 \sqrt{5.46})}] \\ = \underline{62.9 \text{ kPa}}$$

Using eq. (2)

$$P_{MAX} = \frac{2400 \times 3.00}{100} \\ = \underline{72.0 \text{ kPa}}$$

These values of P_{MAX} can be plotted to give this pressure diagram:



EXAMPLE 2.3

The CIRIA formula is very sensitive to variations in its parameters.

(a) Consider the same pour as given in Example 2.2 but with a slower pouring method.

If the wall is to be poured with a 1.2m³ bucket working on a 6 minute cycle then the delivery rate becomes:

$$1.2 \times 60 / 6 = 12.0 \text{ m}^3/\text{hr},$$

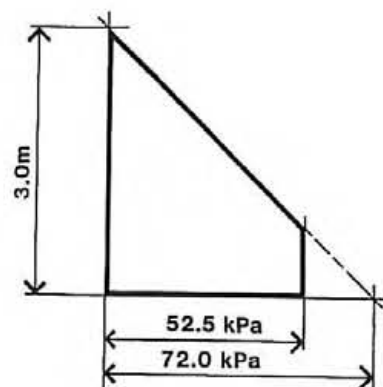
and the vertical pouring rate reduces to:

$$R = 12.0 / (0.3 \times 12.2) \\ = 3.28 \text{ m/hr}$$

As a result the maximum pressure to eq. (1) (with the other parameters unchanged) reduces to:

$$(1) P_{MAX} = \underline{52.5 \text{ kPa}}$$

This is a reduction of 16.5% in the design pressure! Giving this pressure diagram.



EXAMPLE 2.3 (cont)

(b) If the weather is cooler than anticipated then hydration, and therefore concrete stiffening will be slower. Consider the same pour as given in Example 2.2 but with a concrete temperature of 10°C.

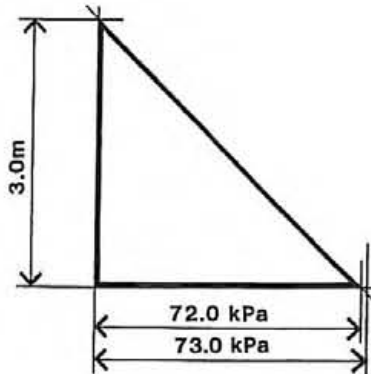
The temperature coefficient becomes:

$$K = [36 / (10 + 16)]^2 = 1.92$$

As a result the maximum pressure to eq. (1) (with the other parameters unchanged) increases to:

$$(1) P_{MAX} = \underline{73.0 \text{ kPa}}$$

Giving this pressure diagram:



This exceeds the pressure calculated to eq. (2) so its value of 72.0 kPa applies. It means that, due to the cold weather, the concrete stiffened slowly and therefore remained fluid throughout the pour.

Using eq. (2)

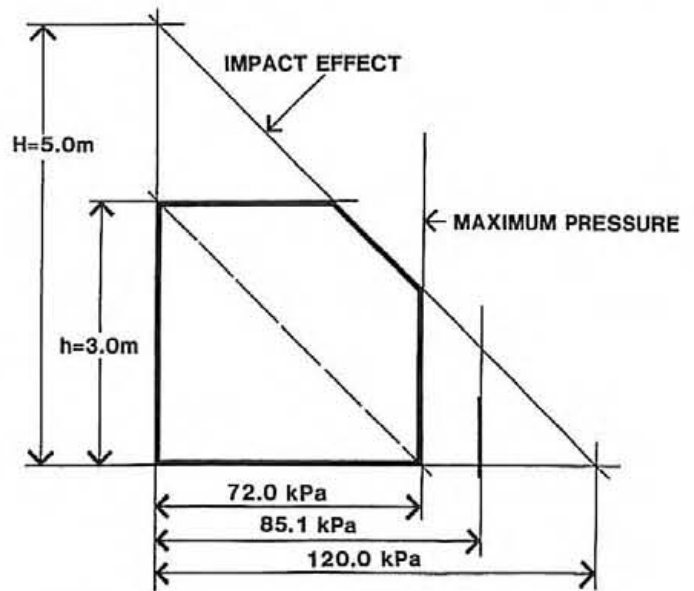
$$P_{MAX} = \frac{2400 \times 3.0}{100} = \underline{72.0 \text{ kPa (for 3m height)}}$$

This value is the absolute maximum that the pressure can attain.

$$\text{and } = \frac{2400 \times 5.0}{100} = \underline{120.0 \text{ kPa (for 5m height)}}$$

This value gives us the sloping line that plots the effect of the impact of the falling concrete which, however, cannot exceed the value for full hydrostatic head for 3m.

Giving this pressure diagram:



EXAMPLE 2.4

A 250mm thick, 14.0 long 5m high wall form is to be filled to a height of 3m with a concrete bucket having a delivery rate of 24m³/hr. The concrete, of density 2400kg/m³, is made with Type FA cement and has a retarder added. The anticipated concrete temperature is 20°C. This example is illustrated in Figure 2.4.

As the plan length is greater than 2m, $C_1 = 1.0$ and from Table 2.2, $C_2 = 0.60$

Vertical pour rate:

$$R = 24.0 / (0.25 \times 14.0) = 6.86 \text{ m/hr}$$

The temperature coefficient:

$$K = [36 / (16 + 20)]^2 = 1.0$$

Checking to see if eq. (1) applies:

$$C_1 \sqrt{R} = 1.0 \times \sqrt{6.86} = 2.61 < 5.0 \text{ so use eq. (1)}$$

Using eq. (1)

$$P_{MAX} = 2400/100[(1.0 \times \sqrt{6.86}) + 0.6 \times 1.0 \sqrt{(5.0 - 1.0 \sqrt{6.86})}] = \underline{85.1 \text{ kPa}}$$

Other examples illustrating the calculation of pressures for irregular shaped concrete elements can be found in reference [6], CIRIA Report 108.

The examples illustrate the quite marked influence that quite reasonable changes in concrete temperature and pour rate can have. All formwork designers know how little control they have over the method and rate of pouring the concrete; and they have no control over the temperature. As a result they usually adopt the practice of designing for the full hydrostatic pressure. This covers most cases. However, even this pressure can be exceeded if the pump nozzle is immersed in the fluid concrete. Ford (11) recommends that the design pressure be increased by 50% to cater for this.

Further, there are a number of situations for which this CIRIA formula is not applicable as the pressure is even far greater than that given by Equation (2) of the formula, i.e. hydrostatic pressure. These are:

1. Grout injected concrete. An example of this is the Norwegian technique of Naturbetong where grout is pumped into a form packed with selected stones. The resistance to the grout penetrating the voids between the stones results in a formwork pressure that far exceeds even the hydrostatic pressure of concrete.
2. Pumping the concrete into the formwork from the base. Here the resistance to the flow of concrete is not just the hydrostatic pressure of the concrete already in the form. The concrete must force its way past the maze of reinforcement and overcome the friction at the formface. An added disadvantage is the effective removal of the surface film of release agent that occurs with this friction.
3. Deep re-vibration of the concrete. There is evidence to suggest that this technique may be responsible for many of the 'corrugated' surfaces on buildings constructed in recent years. The method treats pouring and vibrating the concrete as two separate and sequential operations. First, the concrete is placed in the form as quickly as possible and without any attempt at compaction by vibration. When the form is filled, the vibrators, usually three or more together, are lowered quickly down to the bottom of the fluid concrete and then slowly withdrawn. As a result, with a depth of concrete pressing down from above, there is little chance for the considerable energy input from the vibrator to dissipate. Consequently, the pressure greatly increases at the vibrator and the formface deflects further. As the vibrator is raised the area below it, still fluidised by vibration, consolidates and the formface deflection is held by aggregate interlock within the concrete. Measurement of the formface deflection confirms the presence of very high pressures.
4. External vibration. Here an effect, similar, but usually less intense than, 'deep re-vibration' occurs. External vibrators can effectively fluidise the concrete over quite a large area. The more rigid that the materials of the formwork are and the more rigid its framing, the greater is the area of fluidisation. As a result total fluidisation of the concrete can occur with resultant increase in the maximum pressure. It does not appear that any research has been done on a formula to calculate this pressure.

Unfortunately no research appears to have been done which can be used to give guidance on the pressures which can occur in the four high pressure situations.

On the other hand, the CIRIA formula over-estimates the pressure for no-fines concrete, underwater concreting and formfaces such as expanded metal which is very permeable.

Recommendations

It is recommended that the CIRIA formula only be used where the parameters of the pour: the pour rate and concrete characteristics, can be accurately assessed. **The pressure graphs, in Figure 2.5, on the following pages can be used for the rapid determination of the design pressure for these cases.** Examples of these would be special purpose formwork for major projects where the conventional pouring technique of the successive placement and consolidation of layers of concrete is adopted. In all other cases, apart from the four high pressure exceptions described above, it is recommended that the form be designed at least for full hydrostatic pressure.

Graphs in Figure 2.5 give values for the pressure in wall and column forms for $C_1 = 1.0$ and 1.5 . In all cases the concrete density adopted is 2500 kg/m^3 as this is approximately the upper limit of concrete densities encountered in Australia. The graphs cover the use of concretes using Type FA and SA cements without retarder ($C_2 = 0.45$) and with retarder ($C_2 = 0.60$), and concretes that contain greater than 40% fly ash or greater than 70% blast furnace slag in the cement ($C_2 = 0.60$).

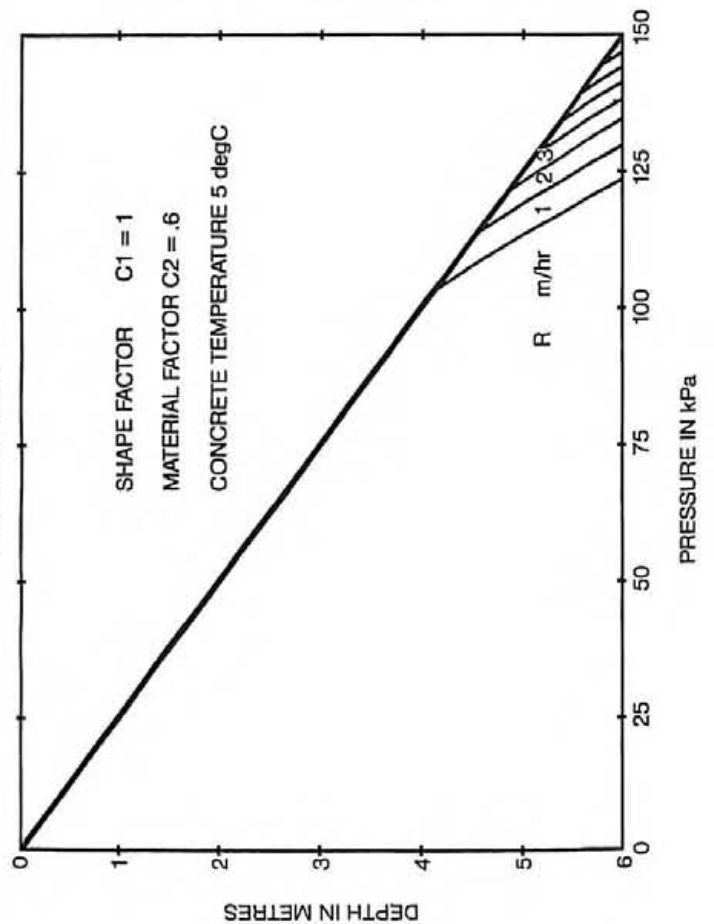
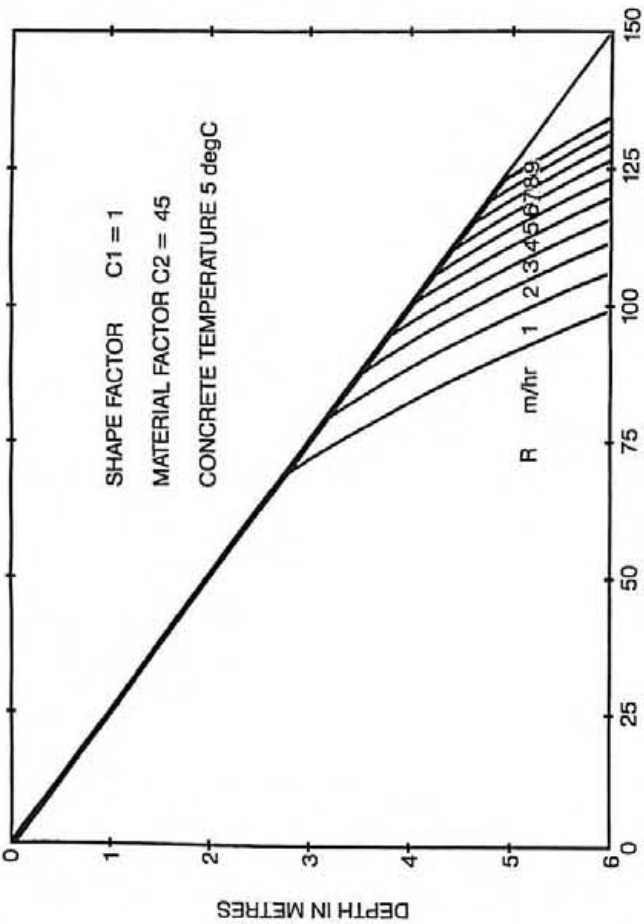
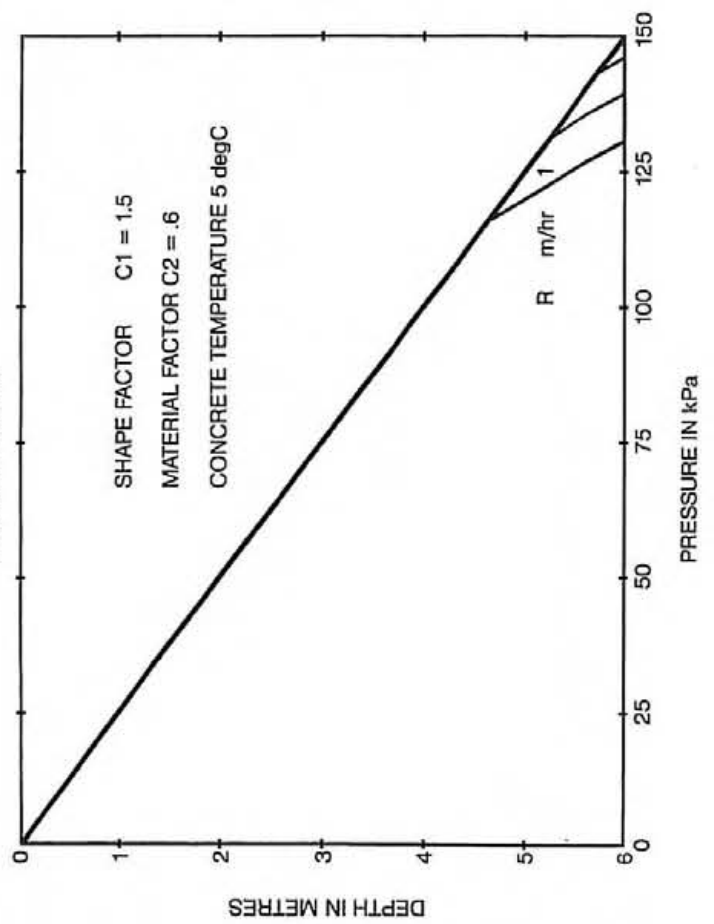
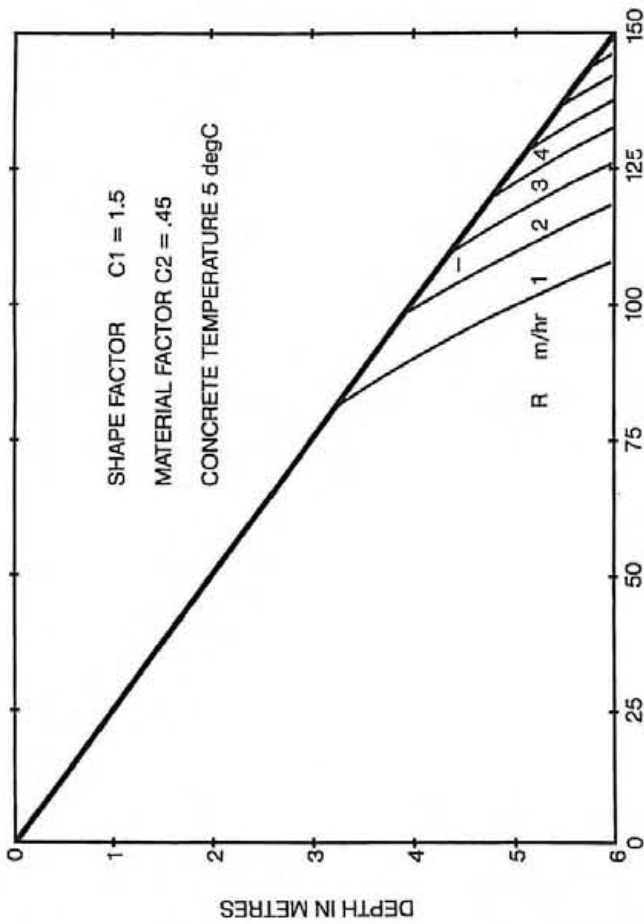
The pressures that occur when unblended cements are used without retarders are not covered ($C_2 = 0.30$), nor are the concretes with superplasticizing admixtures ($C_2 = 0.75$) as both of these comprise a very small proportion of the concretes used. For the case of $C_2 = 0.3$, the similar example with $C_2 = 0.45$ will give a conservative evaluation of the pressure. For $C_2 = 0.75$, the pressures can be calculated from the CIRIA equations on pages 11 and 12.

The pressures are given for concrete temperatures of 5, 10, 15, 20, 25 and 30 degrees Celsius. Each graph gives the pressure for the range of vertical rates of pour normally found in modern construction work, on the assumption that the concrete is placed by the typical method of successive vibrated layers.

**FIGURE 2.5 CONCRETE PRESSURES
DEVELOPED IN VERTICAL POURS
PAGES 16 to 21.**

Figure 2.5 (cont) Concrete Pressures Developed in Vertical Pours (kPa)

Concrete Mix Temperature 5°C.



Concrete Mix Temperature 10°C.

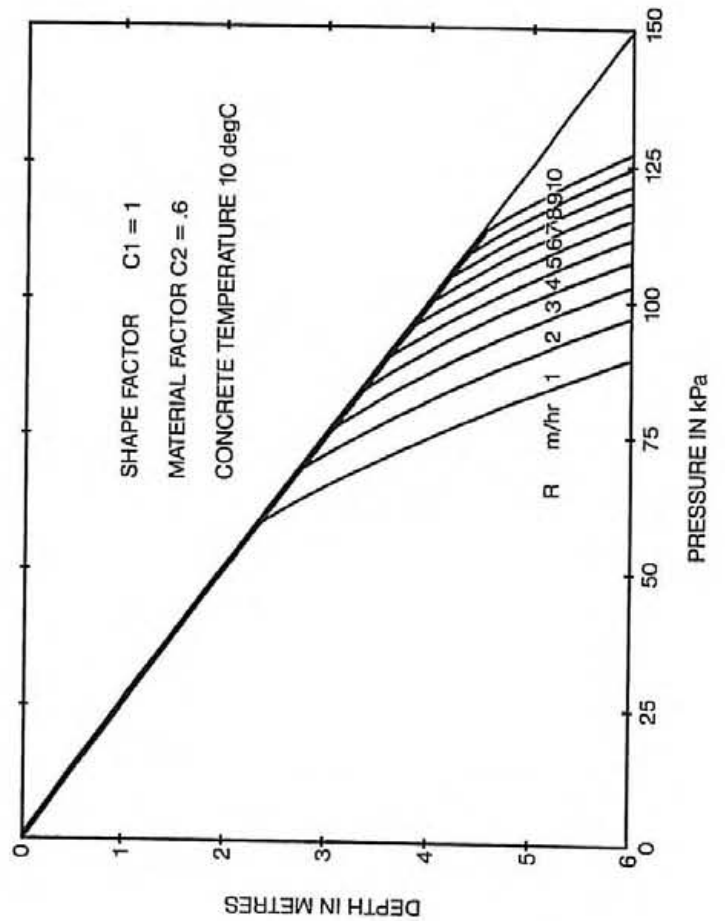
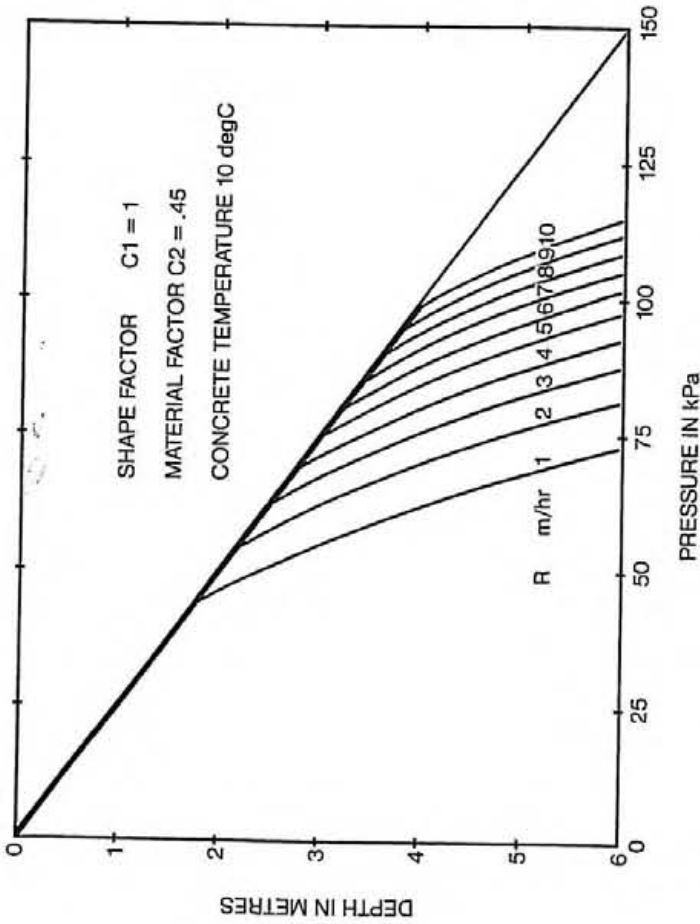
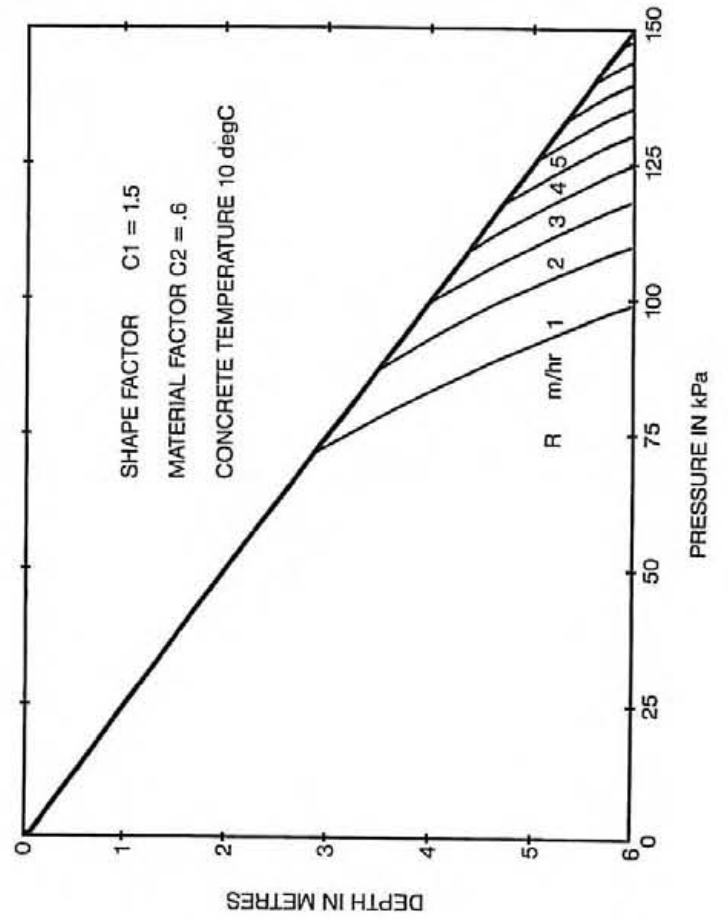
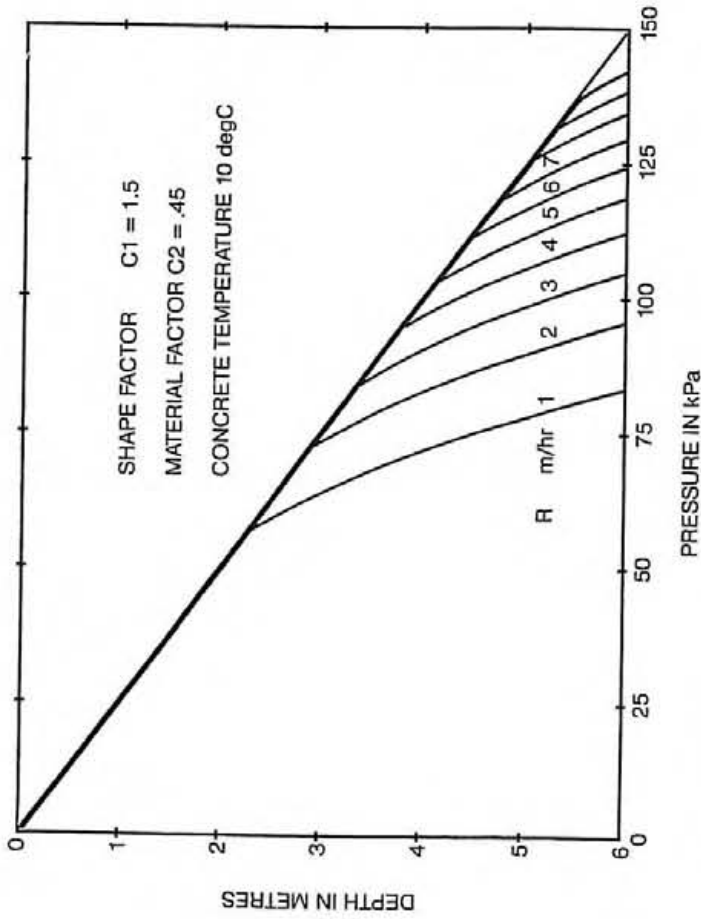
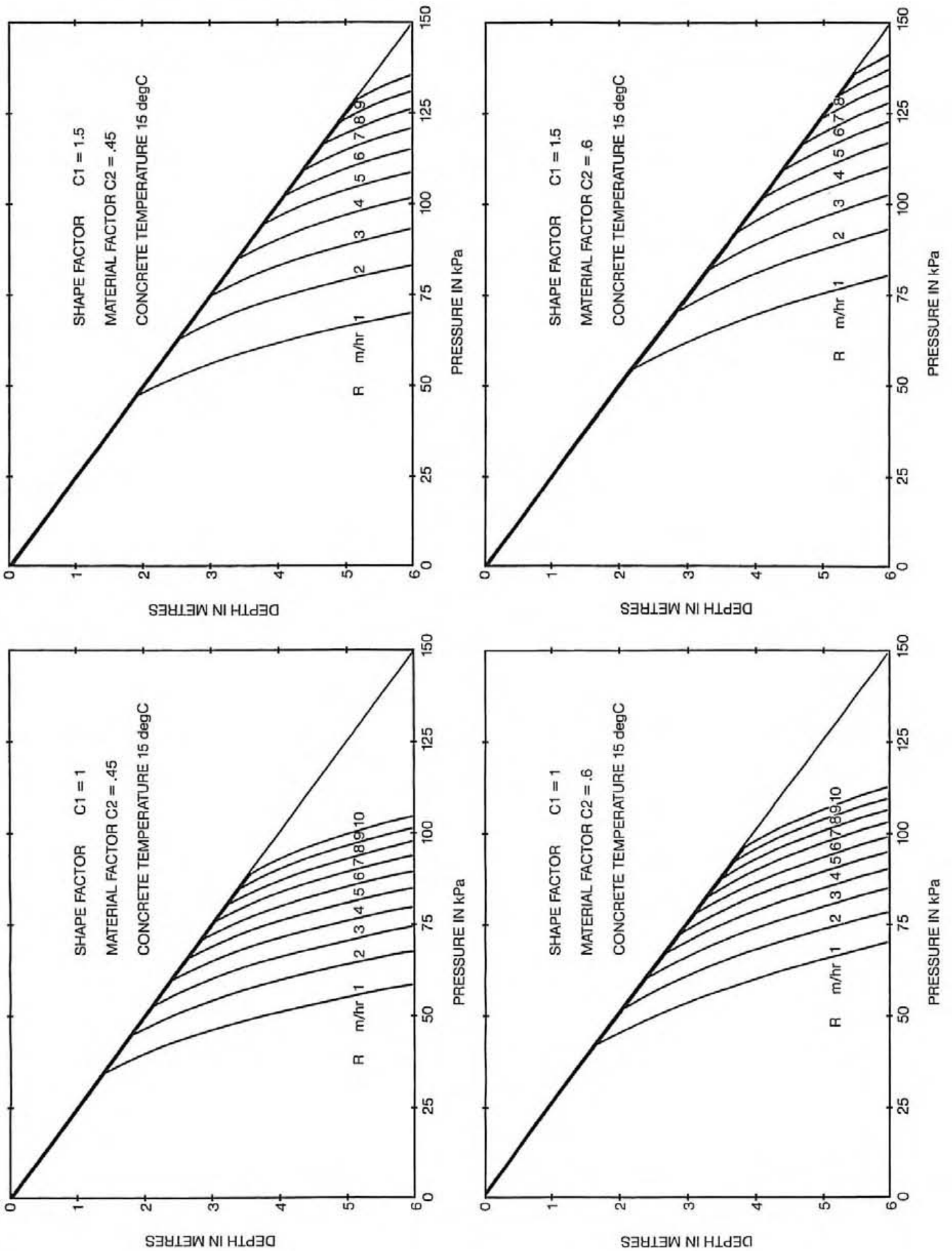


Figure 2.5 (cont) Concrete Pressures Developed in Vertical Pours (kPa)

Concrete Mix Temperature 15°C.



Concrete Mix Temperature 20°C.

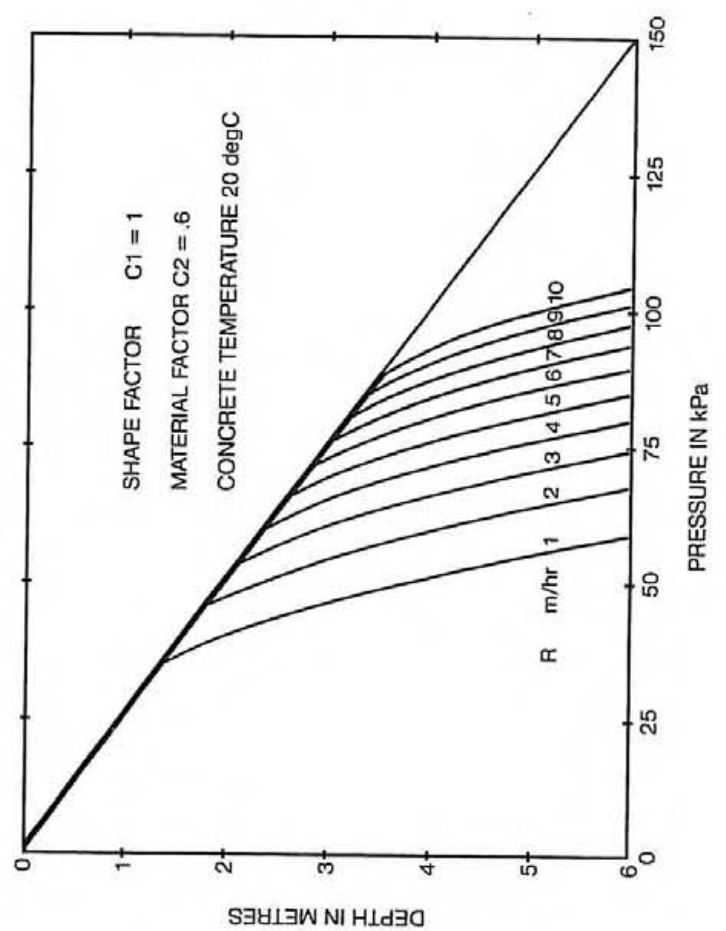
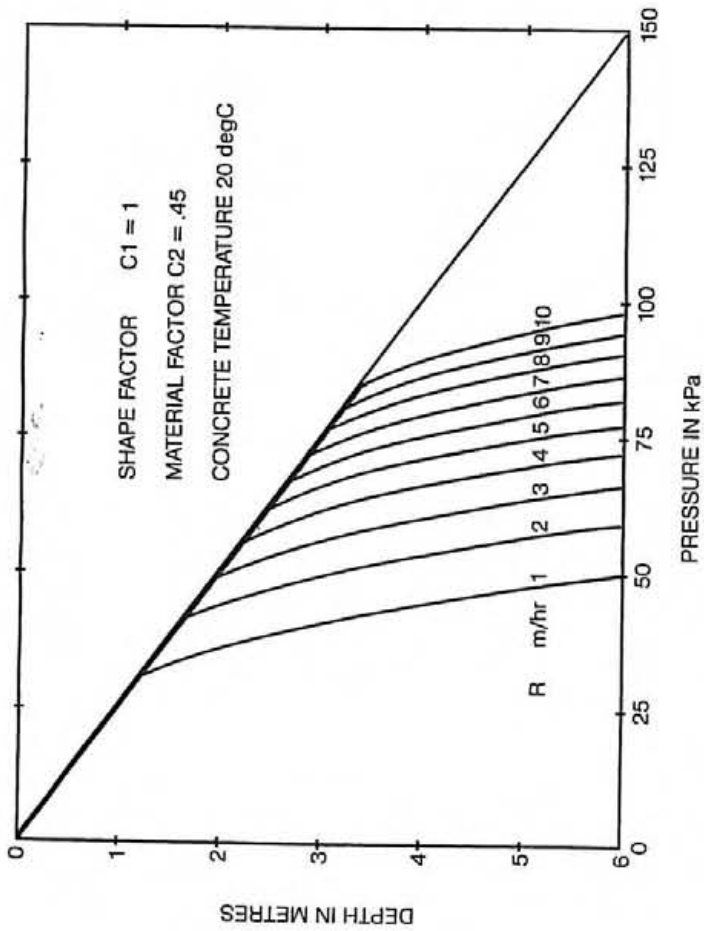
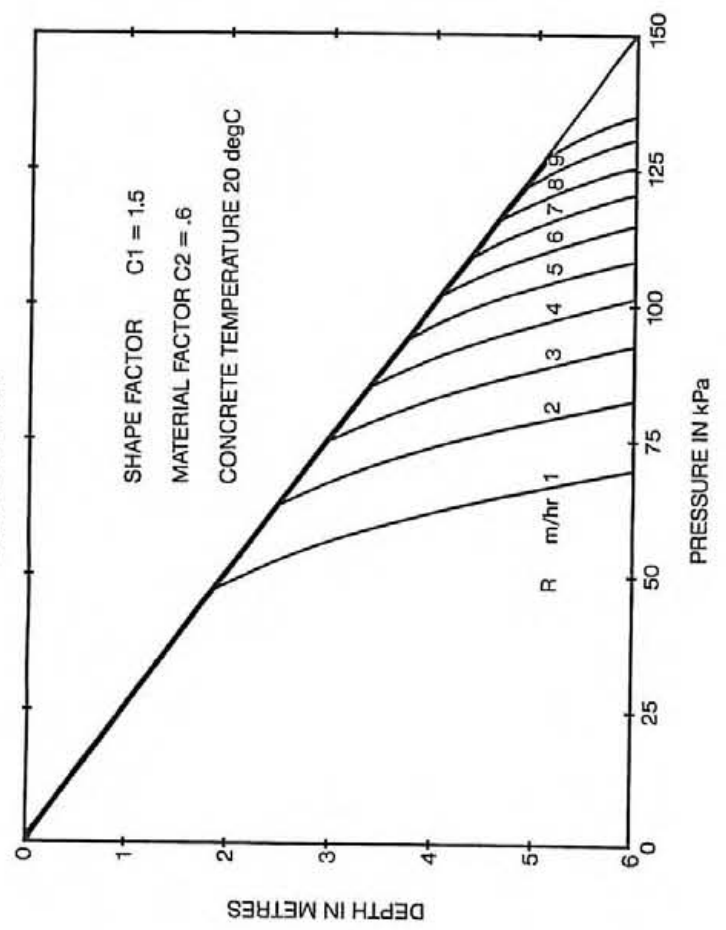
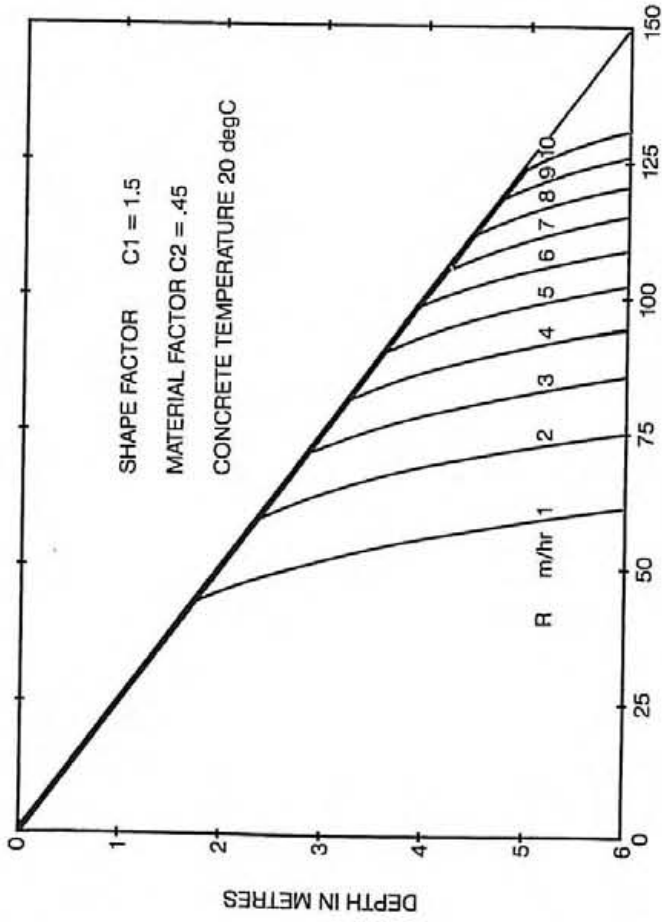
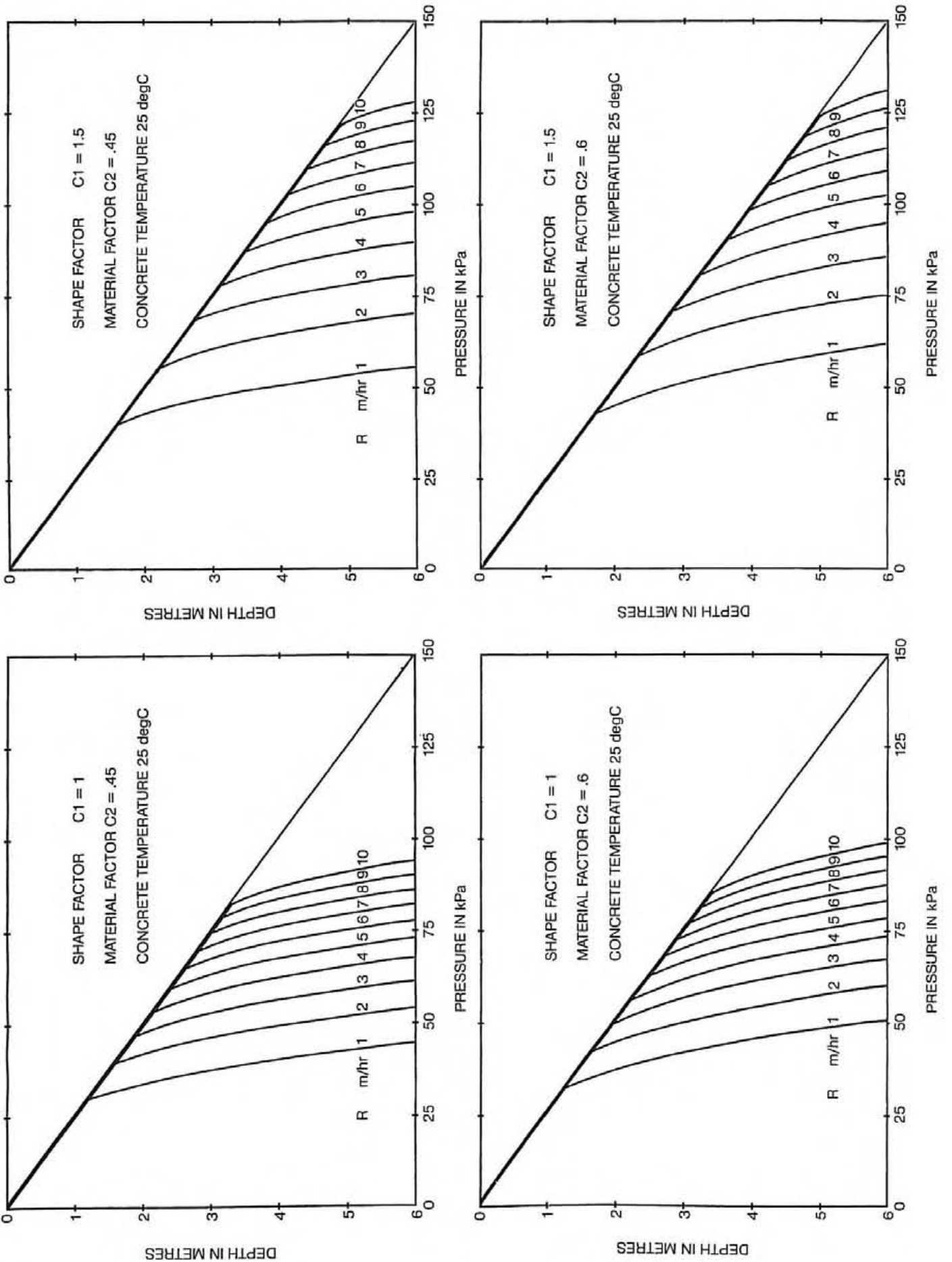
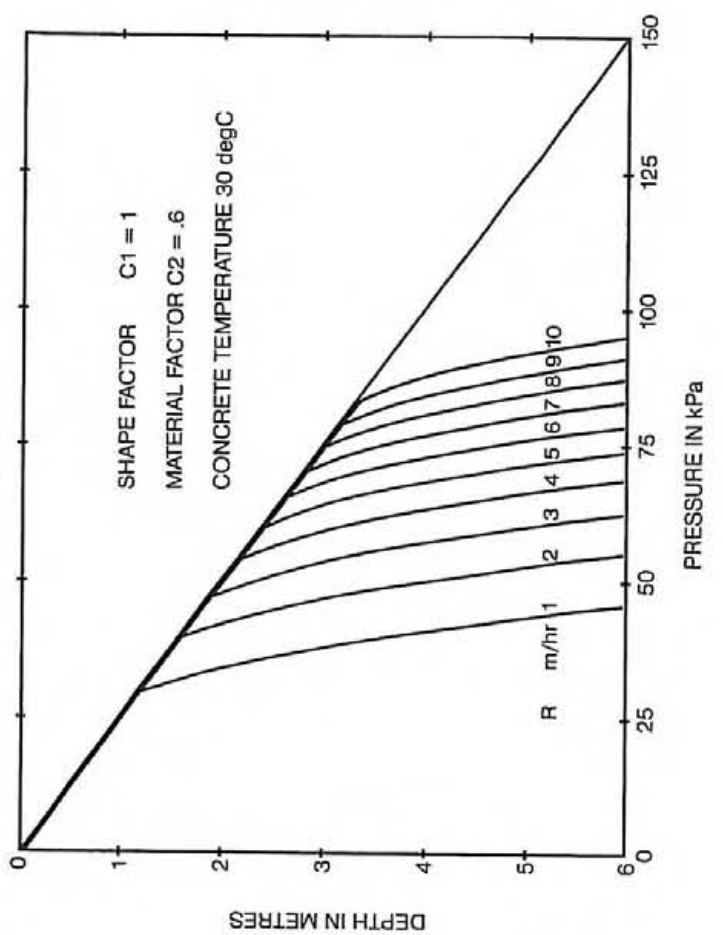
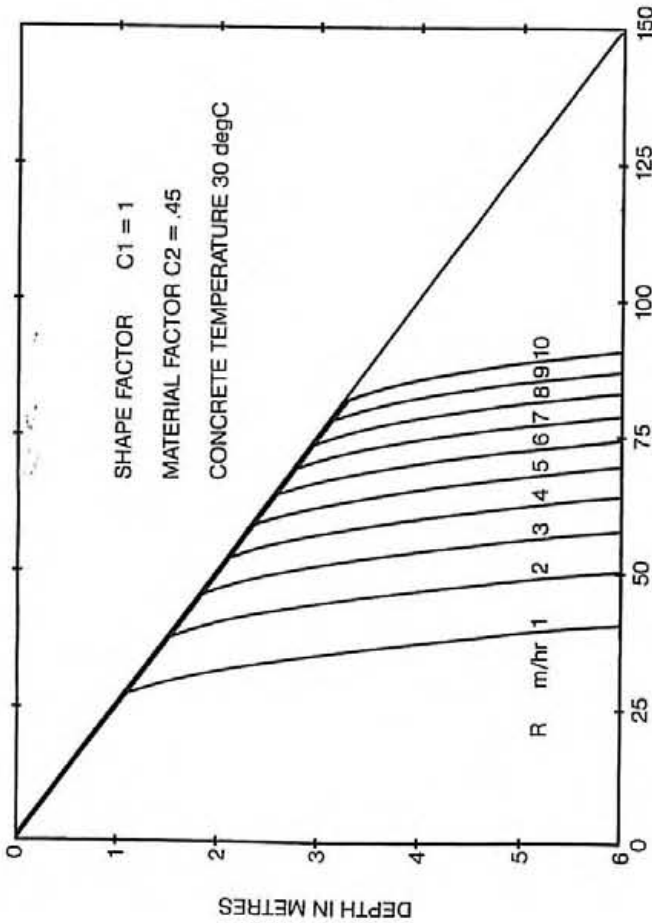
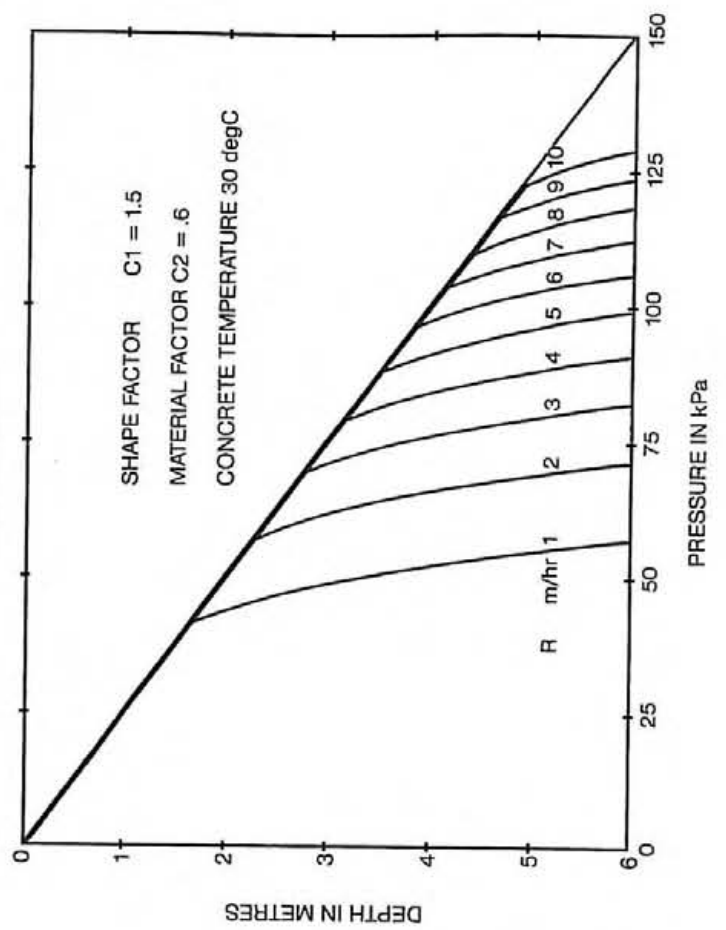
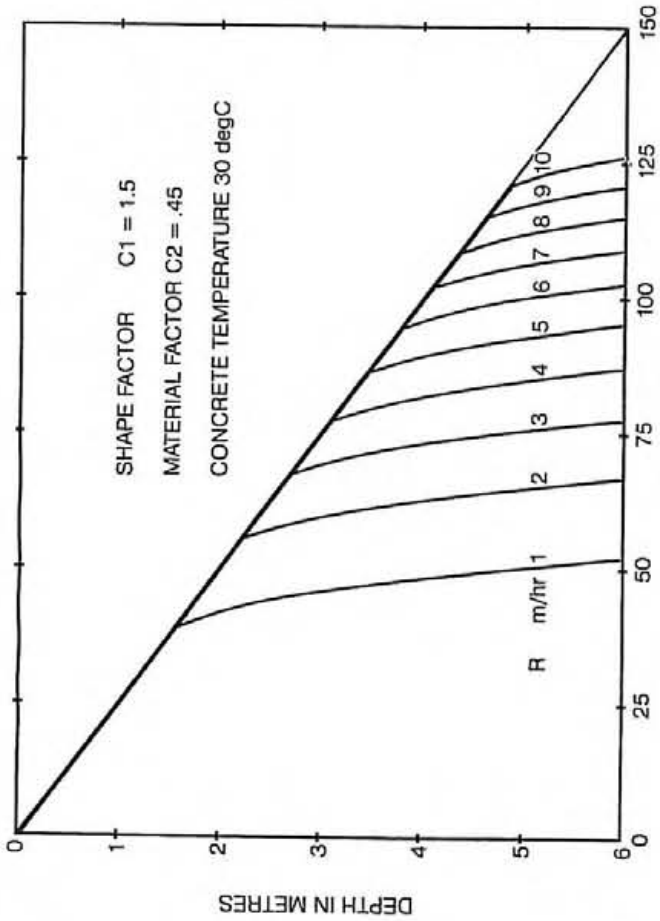


Figure 2.5 (cont) Concrete Pressures Developed in Vertical Pours (kPa)

Concrete Mix Temperature 25°C.



Concrete Mix Temperature 30°C.



CHAPTER 3

PLYWOOD SELECTION — STRUCTURAL CONSIDERATIONS

Plywood for formwork is available in Australia in a range of stress grades, bond types, veneer arrangements (constructions) and thicknesses. This wide range of products gives the formwork designer great flexibility. There is a suitable performance/cost optimised plywood for almost every conceivable case. Care must be taken however to ensure the correct plywood product is specified to meet not only the surface finish requirements detailed in Chapter 2 but also the structural requirements over the intended life of the form. The three main factors that determine the structural performance of plywood are discussed in this Chapter.

Properties Affecting Structural Performance

Bond

For the formwork plywood to be structurally sound the bond between veneers must remain intact for the life of the form. AS3610, Formwork for Concrete, specifies that for use as formwork, plywood is to comply with AS2269, Structural Plywood, or AS2271, Exterior Plywood and Blockboard. Plywoods complying with these standards comprise either the fully permanent Type A bond which can be exposed indefinitely without breakdown or the Type B bond which can be left fully exposed for 2 years. Type A bonded plywood is manufactured from phenolic adhesives and Type B bonded plywoods from melamine fortified urea adhesives. Type B bonded plywood is completely suitable for most formwork which is rarely exposed for periods in excess of two years.

It is noteworthy that AS3610 Supplement 2, which is the commentary on the Code, acknowledges in clause C5.3.5.2(b) that although plywoods manufactured in accordance with AS2269 and AS2271 are specified in AS3610 Table 4.5.4 to ensure bond durability and therefore structural performance, it is possible to use plywood manufactured to AS2270 with the less durable Type C and D interior bonds under circumstances where a single use or a small number of reuses is envisaged.

Stress Grade

The stress grade of the plywood is a major determinant of the structural performance of plywood formwork. The stress grade defines the basic allowable working stresses and elastic moduli of the plywood panels and permits reliable prediction of its strength and stiffness. Stress graded plywood is truly an engineered product. The methods of determining stress grades for plywood are defined in Australian Standard AS2269, Structural Plywood. It is the plywood manufacturer's responsibility through the PAA quality control program to apply the correct stress grade marking to his production.

The stress grade is designated by a capital F followed by a number, e.g. F11, F14. The basic allowable working stresses for bending strength F_b , tension strength F_t , compression strength F_c , shear strength F_s , modulus of elasticity E and modulus of rigidity G are given in AS2269 for eight stress grades of plywood. The allowable basic working stresses as detailed in Table 3.1, extracted from AS2269, were used in accordance with the requirements of AS1720.1 SAA Timber Structures Code to establish the tabulated engineered data in this chapter.

The stress grading of plywood is based on the fact that the allowable working stresses depend on veneer species and quality. When manufactured to AS2269 or AS2271 both species and veneer quality are known. Stress grading can therefore be readily applied. Stress grading provides a means of fully utilising the forest resources, e.g. under the same support conditions a panel of flooded gum plywood, stress graded F17, can carry the same load as a thicker panel of plantation grown pinus plywood, stress graded F11. Similarly, under the same support conditions the F17 panel will carry more load than a F11 panel of the same thickness.

TABLE 3.1: BASIC WORKING STRESSES AND ELASTIC MODULI OF FORMWORK PLYWOOD (MPa)

Stress Grade	Stress Value MPa					
	Bending F_b	Tension F_t	Shear F_s	Compression F_c	Modulus of Elasticity E	Modulus of Rigidity G
F11	11.0	6.6	1.80	8.3	10500	525
F14	14.0	8.4	2.05	10.5	12000	625
F17	17.0	10.2	2.30	12.8	14000	700
F22	22.0	13.2	2.30	16.5	16000	800
F27	27.5	16.5	2.30	20.6	18500	925

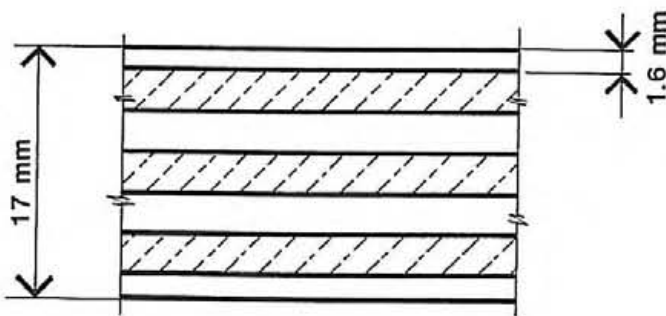
The above basic working stresses must be modified with the appropriate factors from AS 1720 for the concrete formwork application to establish actual design stresses. The duration of load factor K_1 has been taken as 1.65 from AS 1720.

Veneer Arrangement (Construction)

The final factor of the three of importance to the structural performance, is the overall panel thicknesses and arrangement of the veneers within the panel. For plywoods of equal thickness, variations in the total number, thicknesses and location of the veneers can markedly affect the moment of inertia (I), the section modulus (Z) and hence the panel strength and stiffness. A coding system has been devised to effectively identify variations in the construction of plywood panels.

This coding system uses the three key variables of total panel thickness, face veneer thickness and the number of plies, to identify a plywood construction. For clarity, nominal plywood and face veneer thicknesses are used and decimal points are eliminated by multiplying the nominal face veneer thickness by ten. These values are set out in the following order:

1. The thickness of the plywood.(mm)
2. The nominal thickness of the face veneer.(mm x 10)
3. The number of plies in the assembly.



The code for this 17mm
7 ply plywood with a
nominal 1.6mm face would
be 17-16-7

Figure 3.1 Example of Coding System
for Plywood Formwork

The coding system covers most standard formply thicknesses and constructions and in combination with the stress grades from AS2269 gives the means used to produce the load/span tables in this chapter. To adapt the coding system to suit a non-standard plywood thickness or construction, the non-standard plywood is coded as the standard plywood with the nearest thinner total thickness and face veneer thickness, e.g. a 13mm thick 5 ply with a 1.2mm nominal face veneer thickness, would be identified as 12-10-5. This method of applying the coding system to non-standard constructions will always be conservative.

The exact properties and load carrying capacities of non-standard constructions may be computed from first principles using the design methods detailed in Appendices A and B.

It has always been recommended that to maximise structural performance in applications involving bending normal to the plane of the panel, the plywood should be supported so that the face grain (usually the longer dimension of the panel) is parallel to the span. For most standard structural plywood constructions therefore, the panels will be stiffer and stronger in the longer than the cross direction. For some constructions, however, where the face veneer is relatively thin, as is often the case with formwork plywood because of surface finish requirements, the plywood panel may have near equal structural properties in both directions. In either case, for a given overall plywood thickness, it is the face veneer thickness that is most critical to the strength and stiffness. The outer veneers act similarly to the flanges of an 'I' beam and provide most of the bending strength and stiffness. Plywood with thick face veneers is extremely stiff and strong in the direction of the face grain and considerably weaker in the cross direction. For the same overall plywood thickness a thinner face veneer will cause a reduction in strength and stiffness in the direction of the face grain but an increase in structural capacity in the cross direction because the cross veneers, second in from the face, are located closer to the extreme fibres.

Because there is usually insufficient site control to ensure that the formwork plywood is always installed with the face grain parallel to the span it is practical to select a plywood that has near equal structural properties in both directions.

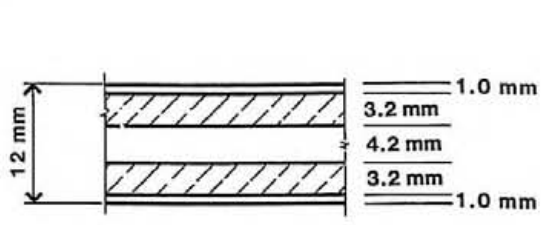
With overlaid plywood which has been cut or previously used it is difficult, and sometimes impossible, to identify the direction of the face grain, and the plywood can readily be placed with its face grain in the wrong direction. Many formworkers are not aware of the importance of veneer arrangement. If there is a marked difference between the strength and stiffness along the face grain and in the cross direction this can lead to some parts of the concrete surface showing greater deflections than the other. This corrugation or quilting can be quite unacceptable.

The selection of a plywood that has approximately equal section properties in both direction will give nearly equal deflections for equal span and loading regardless of the direction of the face grain. Table 3.2 lists a number of suitable plywoods. Only where there is control over the formwork prefabrication, such as for large wall forms and tableforms, should plywoods which have superior flexural properties in one direction be used.

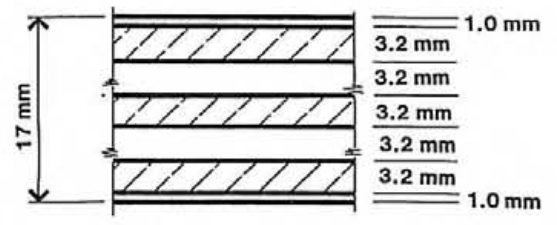
For crossbanded plywood, i.e. plywood with the face grain in the shorter panel direction, which is uncommon in formwork plywood, care should be taken in applying the section properties given in Table 3.2 to ensure that the face grain versus span arrangement has been correctly determined.

Figure 3.2 details the identification code for standard plywood formwork constructions. Section properties for these standard constructions are given in Table 3.2.

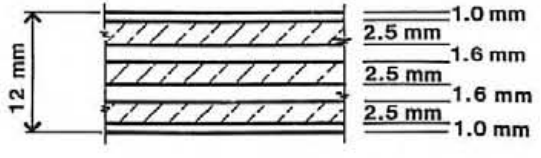
Figure 3.2 Identification Code for Standard Plywood Formwork Constructions



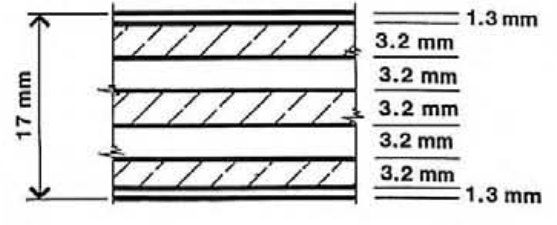
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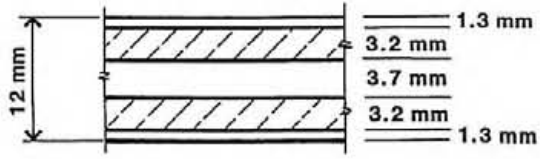
Identification 17-10-7



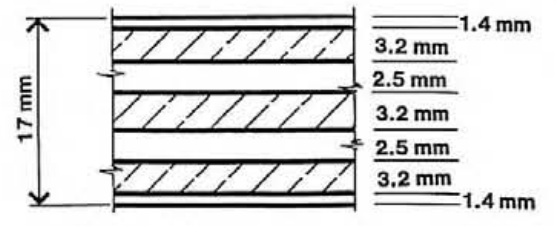
Identification 12-10-7



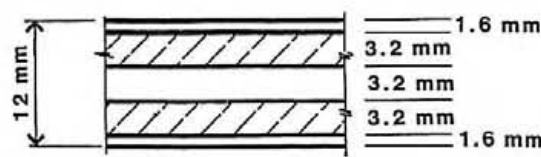
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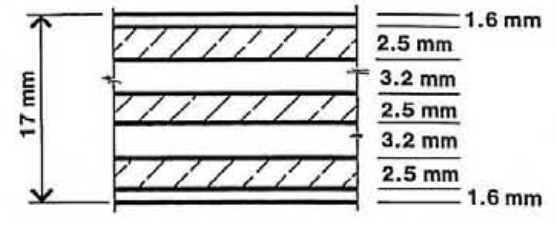
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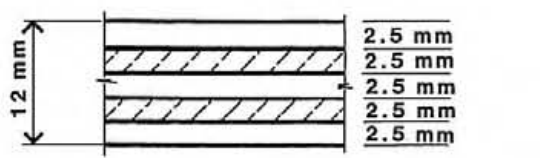
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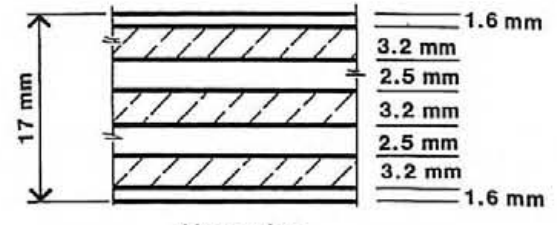
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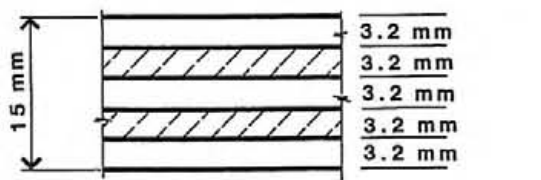
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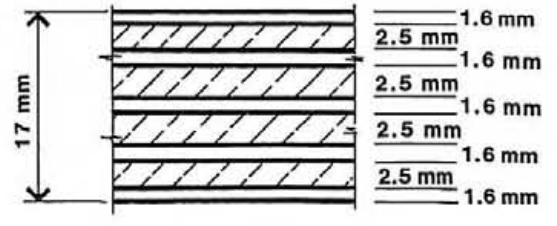
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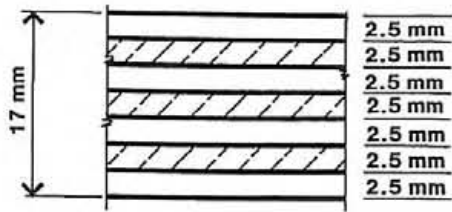
Alternative Identification 17-16-7



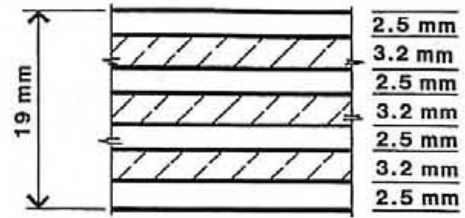
Identification 15-32-5



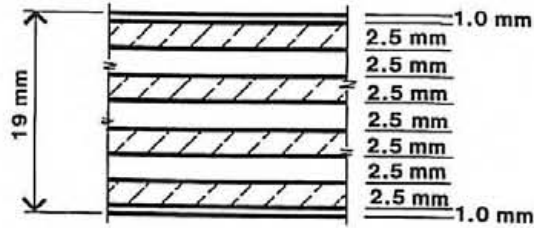
Identification 17-16-9



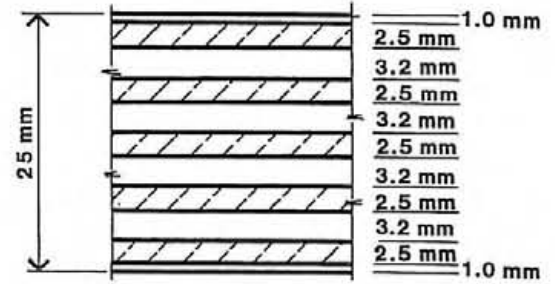
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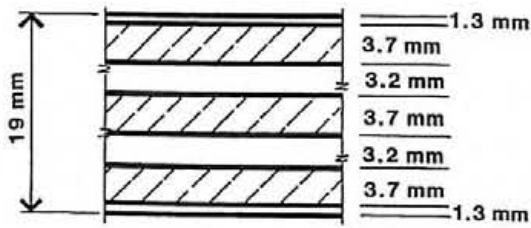
Identification 19-25-7



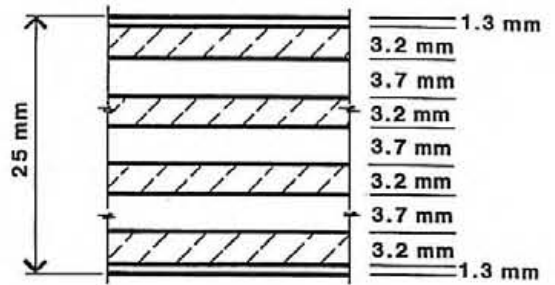
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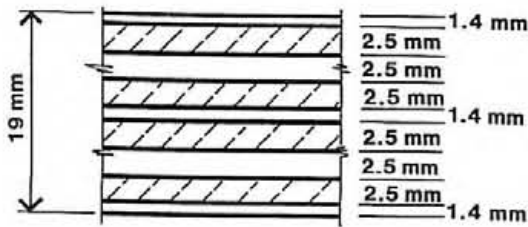
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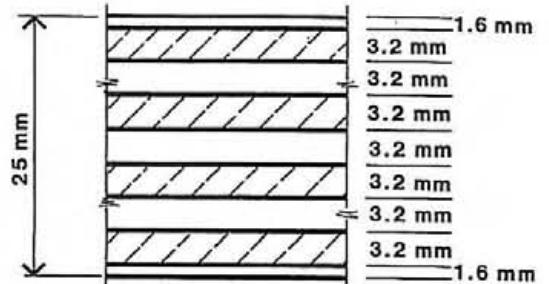
Identification 19-13-7



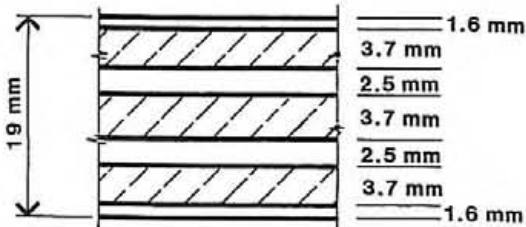
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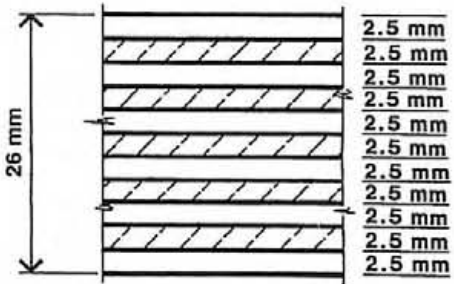
Identification 19-14-9



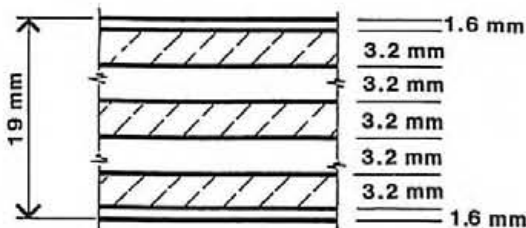
Identification 25-16-9



Identification 19-16-7



Identification 26-25-11



Alternative
Identification 19-16-7

Note:

The veneer thicknesses in the standard constructions given in Figure 3.2 are nominal thicknesses. They have been reduced by 6% to allow for compression in pressing and shrinkage in drying when computing the section properties in Table 3.2. Section properties in Table 3.2 Veneer thicknesses are therefore based on actual plywood and veneer thicknesses.

TABLE 3.2: SECTION PROPERTIES, MOMENT OF INERTIA (I) AND SECTION MODULUS (Z) FOR STANDARD PLYWOOD FORMWORK CONSTRUCTIONS PER 1mm WIDTH

Identification Code	Nominal Plywood Thickness (mm)	Plywood Face Grain Parallel to Span		Plywood Face Grain Perpendicular to Span	
		Moment of Inertia (I) mm ⁴ / mm	Section Modulus (Z) mm ³ / mm	Moment of Inertia (I) mm ⁴ / mm	Section Modulus (Z) mm ³ / mm
12-10-5	12	70	11.0	80	15.5
12-10-7	12	75	12.5	80	15.0
12-13-5	12	75	12.5	70	14.5
12-16-5	12	95	15.0	65	13.5
12-25-5	12	115	19.0	35	8.5
15-32-5	15	225	29.5	65	13.0
17-10-7	17	195	22.0	230	29.5
17-13-7	17	225	25.0	230	29.5
17-14-7	17	210	24.0	205	28.0
17-16-7	17	220	25.5	160	22.5
17-16-9	17	235	27.0	195	26.5
17-25-7	17	275	32.5	120	19.0
19-10-9	19	285	29.5	300	34.5
19-13-7	19	270	27.5	315	37.0
19-14-9	19	305	32.0	255	31.0
19-16-7	19	280	29.5	255	31.5
19-25-7	19	360	38.0	190	26.5
25-10-11	25	750	56.5	715	58.0
25-13-9	25	670	52.0	660	57.0
25-16-9	25	640	51.5	575	52.5
26-25-11	26	990	74.0	590	51.5

The section properties Moment of Inertia (I) and Section Modulus (Z) were determined using the method described in AS1720.1. This method is based on the "parallel ply" theory, i.e. that veneers in the cross direction contribute nothing to strength and little to stiffness.

It should be noted that the nominal plywood and veneer thicknesses are used in Figure 3.2, whereas the actual thicknesses are used to compute the section properties. The actual thicknesses allow for a reduction of approximately 6% due to shrinkage of the veneer during drying and compression during hot pressing.

The method of computing section properties in Table 3.2 in accordance with AS1720.1 is detailed in Appendix A.

Plywood Panels — Standard Dimensions

The standard formwork plywood panel sizes most commonly available are 2400 x 1200mm and 1800 x 1200mm. The other standard sizes are 2400 x 900mm, 2100 x 1200mm, and 1800 x 900mm. Not all of the standard sizes are available in the complete range of standard thicknesses and constructions. Plywood suppliers should be consulted on availability. Some manufacturers will supply non-standard panel sizes.

To specify formwork plywood firstly provide the panel dimensions. Give the direction parallel to the grain of the face veneers first followed by the dimension across the grain. Follow this with the panel identification code and the stress grade. e.g. 2400 x 1200 x 17-10-7, F14.

Tolerances

The tolerances on panel length, width, squareness and edge straightness detailed below conform to AS2269 Structural Plywood and AS2271 Exterior Plywood and Blockboard, and have been found satisfactory for formwork construction.

Panel length	+/- 1.5mm
Panel width	+/- 1.5mm
Thickness	+/- 3% on the stated nominal thickness
Squareness	3mm maximum difference in diagonals
Edge straightness	+/- 1.2mm maximum deviation from a straightedge

Panels are sawcut to size and the edges are not subsequently planed. The effects of this on formwork for architectural concrete work is discussed in Chapter 4.

The Marking of Plywood for Formwork

For identification purposes and to allow the engineering data in this manual to be used correctly it is strongly recommended that all plywood panels for formwork be marked as follows.

1. Manufacturer's or Suppliers Name or Brand Name.
2. Product description e.g. FORMWORK.
3. Bond Type e.g. A or B.
4. Identification code, e.g. 17-16-7.
5. Stress Grade. e.g. F11.

The marking should be on every panel face or edge, or alternatively the information may be provided on a certificate that accompanies the delivery.

Example of suitable marking:

Brown and Co.
Plyform
A bond
17-16-7
F11

It is also recommended that the appropriate PAA Quality Control Stamp be applied to each plywood panel.



TESTED STRUCTURAL PLYWOOD
Type A — Marine Bond
 Quality controlled to Australian Standard AS 2269 - 1979
 Structural Plywood

TESTED EXTERIOR PLYWOOD
Type A — Marine Bond
 Quality controlled to Australian Standard AS 2271 - 1979
 Plywood and Blockboard for Exterior Use



TESTED EXTERIOR PLYWOOD
Type B — Bond
 Quality controlled to Australian Standard AS 2271 - 1979
 Plywood and Blockboard for Exterior Use

TESTED PAA PLYWOOD
 Plywood marked with this 'Tested PAA Plywood' stamp is manufactured and quality controlled by the PAA to —
 1. A combination of Australian standards
 2. An industry standard or
 3. An individual company standard

Structural Properties of Formwork Plywood

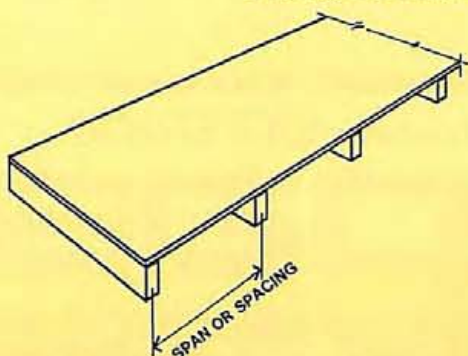
The design methods and the allowable basic working stresses used to obtain the load/span data given in this chapter are in accordance with AS1720.1 SAA Timber Structures Code and AS2269 Structural Plywood. AS3610 Formwork for Concrete gives formface deflection limitations as follows:

- Class 1 concrete surface: lesser of 2mm or span/360
- Class 2 concrete surface: lesser of 3mm or span/270
- Class 3 & 4 concrete surface: greater of 3mm or span/270

In calculating the loads permitted on the plywoods for the various spans, the three criteria of maximum deflection, bending strength and shear strength have been taken into

account. Where strength limitations apply the allowable loads are highlighted. The basic working stresses for the relevant stress grades and the section properties for the standard constructions are given in Tables 3.1 and 3.2. Tables 3.3 to 3.8 detail the allowable concrete pressures for standard formwork plywood constructions and stress grades supported continuously and simply to meet the formface deflection requirements for Class 1, Class 2 and Classes 3 and 4 concrete surfaces as specified in AS3610. The design methods used to compute the allowable concrete pressures for formwork plywood detailed in Tables 3.3 to 3.8 are provided in Appendices A and B covering computation of section properties, deflection, bending and shear strengths. This design method can be used to compute load/span data for non-standard plywood from first principles.

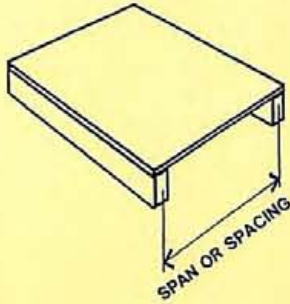
TABLE 3.3: ALLOWABLE CONCRETE PRESSURES FOR FORMWORK PLYWOOD SUPPORTED CONTINUOUSLY OVER THREE OR MORE SPANS (kPa)



Class 1 requirements of AS3610 — Formface deflection criteria lesser of span/360 or 2mm. Allowable pressures limited by strength are coloured. Strength limited values must be multiplied by 0.8 for plywood formwork continuous over two spans only.

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm								Face grain perpendicular to span Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900
12-10-5	F11	33.2	14.0	5.9	4.1	3.4				37.9	16.0	6.7	4.7	3.9	2.0		
	F14	37.9	16.0	6.7	4.7	3.9	2.0			43.3	18.3	7.7	5.4	4.5	2.3		
	F17	44.2	18.7	7.9	5.5	4.6	2.3			50.5	21.3	9.0	6.3	5.2	2.7		
	F22	50.5	21.3	9.0	6.3	5.2	2.7			57.8	24.4	10.3	7.2	6.0	3.1		
	F27	58.4	24.7	10.4	7.3	6.0	3.1			66.8	28.2	11.9	8.4	6.9	3.5		
12-10-7	F11	35.5	15.0	6.3	4.4	3.7				37.9	16.0	6.7	4.7	3.9	2.0		
	F14	40.6	17.1	7.2	5.1	4.2	2.1			43.3	18.3	7.7	5.4	4.5	2.3		
	F17	47.4	20.0	8.4	5.9	4.9	2.5			50.5	21.3	9.0	6.3	5.2	2.7		
	F22	54.1	22.8	9.6	6.8	5.6	2.9			57.8	24.4	10.3	7.2	6.0	3.1		
	F27	62.6	26.4	11.1	7.8	6.5	3.3			66.8	28.2	11.9	8.4	6.9	3.5		
12-13-5	F11	35.5	15.0	6.3	4.4	3.7				33.2	14.0	5.9	4.1	3.4			
	F14	40.6	17.1	7.2	5.1	4.2	2.1			37.9	16.0	6.7	4.7	3.9	2.0		
	F17	47.4	20.0	8.4	5.9	4.9	2.5			44.2	18.7	7.9	5.5	4.6	2.3		
	F22	54.1	22.8	9.6	6.8	5.6	2.9			50.5	21.3	9.0	6.3	5.2	2.7		
	F27	62.6	26.4	11.1	7.8	6.5	3.3			58.4	24.7	10.4	7.3	6.0	3.1		
12-16-5	F11	45.0	19.0	8.0	5.6	4.6	2.4			30.8	13.0	5.5	3.9	3.2			
	F14	51.4	21.7	9.1	6.4	5.3	2.7			35.2	14.9	6.3	4.4	3.6			
	F17	60.0	25.3	10.7	7.5	6.2	3.2			41.1	17.3	7.3	5.1	4.2	2.2		
	F22	68.6	28.9	12.2	8.6	7.1	3.6			46.9	19.8	8.4	5.9	4.8	2.5		
	F27	79.3	33.5	14.1	9.9	8.2	4.2			54.3	22.9	9.7	6.8	5.6	2.9		
12-25-5	F11	54.5	23.0	9.7	6.8	5.6	2.9			16.6	7.0	3.0	2.1				
	F14	62.3	26.3	11.1	7.8	6.4	3.3			19.0	8.0	3.4	2.4	2.0			
	F17	72.6	30.6	12.9	9.1	7.5	3.8			22.1	9.3	3.9	2.8	2.3			
	F22	83.0	35.0	14.8	10.4	8.6	4.4			25.3	10.7	4.5	3.2	2.6			
	F27	86.4	40.5	17.1	12.0	9.9	5.1			29.2	12.3	5.2	3.7	3.0			
15-32-5	F11	84.5	45.0	19.0	13.3	11.0	5.6	2.1		30.8	13.0	5.5	3.9	3.2			
	F14	96.2	51.4	21.7	15.2	12.6	6.4	2.4		35.2	14.9	6.3	4.4	3.6			
	F17	108.0	60.0	25.3	17.8	14.6	7.5	2.9		41.1	17.3	7.3	5.1	4.2	2.2		
	F22	108.0	68.5	28.9	20.3	16.7	8.6	3.3	2.0	46.9	19.8	8.4	5.9	4.8	2.5		
	F27	108.0	79.2	33.4	23.5	19.3	9.9	3.8	2.4	54.3	22.9	9.7	6.8	5.6	2.9		
17-10-7	F11	78.9	39.0	16.4	11.6	9.5	4.9			95.7	46.0	19.4	13.6	11.2	5.8	2.2	
	F14	100.0	44.5	18.8	13.2	10.9	5.6	2.1		109.0	52.5	22.2	15.6	12.8	6.6	2.5	
	F17	122.0	52.0	21.9	15.4	12.7	6.5	2.5		122.0	61.3	25.9	18.2	15.0	7.7	2.9	
	F22	122.0	59.4	25.1	17.6	14.5	7.4	2.8		122.0	70.0	29.6	20.8	17.1	8.8	3.3	2.1
	F27	122.0	68.7	29.0	20.3	16.8	8.6	3.3	2.0	122.0	81.0	34.2	24.0	19.8	10.1	3.8	2.4
17-13-7	F11	89.6	45.0	19.0	13.3	11.0	5.6	2.1		98.0	46.0	19.4	13.6	11.2	5.8	2.2	
	F14	112.0	51.4	21.7	15.2	12.6	6.4	2.4		112.0	52.5	22.2	15.6	12.8	6.6	2.5	
	F17	125.0	60.0	25.3	17.8	14.6	7.5	2.9		125.0	61.3	25.9	18.2	15.0	7.7	2.9	
	F22	125.0	68.5	28.9	20.3	16.7	8.6	3.3	2.0	125.0	70.0	29.6	20.8	17.1	8.8	3.3	2.1
	F27	125.0	79.2	33.4	23.5	19.3	9.9	3.8	2.4	125.0	81.0	34.2	24.0	19.8	10.1	3.8	2.4
17-14-7	F11	86.0	42.0	17.7	12.4	10.3	5.3	2.0		95.2	41.0	17.3	12.1	10.0	5.1		
	F14	108.0	48.0	20.2	14.2	11.7	6.0	2.3		108.0	46.8	19.8	13.9	11.4	5.9	2.2	
	F17	122.0	56.0	23.6	16.6	13.7	7.0	2.7		122.0	54.6	23.0	16.2	13.3	6.8	2.6	
	F22	122.0	64.0	27.0	19.0	15.6	8.0	3.0		122.0	62.4	26.3	18.5	15.2	7.8	3.0	
	F27	122.0	73.9	31.2	21.9	18.0	9.2	3.5	2.2	122.0	72.2	30.5	21.4	17.6	9.0	3.4	2.1

TABLE 3.4: ALLOWABLE CONCRETE PRESSURES FOR FORMWORK PLYWOOD SIMPLY SUPPORTED OVER A SINGLE SPAN (kPa)



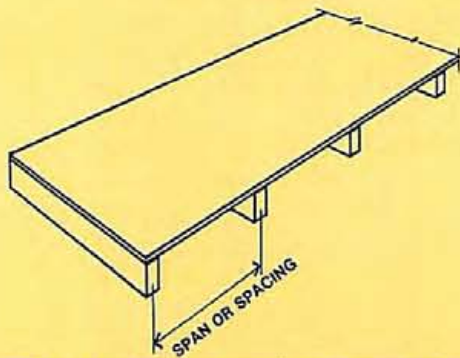
Class 1 requirements of AS3610 — Formface deflection criteria lesser of span/360 or 2mm. Allowable pressures limited by strength are coloured.

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm								Face grain perpendicular to span Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900
12-10-5	F11	13.8	5.8	2.5						15.7	6.6	2.8	2.0				
	F14	15.7	6.6	2.8	2.0					18.0	7.6	3.2	2.3				
	F17	18.4	7.7	3.3	2.3					21.0	8.9	3.7	2.6	2.2			
	F22	21.0	8.9	3.7	2.6	2.2				24.0	10.1	4.3	3.0	2.5			
	F27	24.3	10.2	4.3	3.0	2.5				27.7	11.7	4.9	3.5	2.9			
12-10-7	F11	14.8	6.2	2.6						15.7	6.6	2.8	2.0				
	F14	16.9	7.1	3.0	2.1					18.0	7.6	3.2	2.3				
	F17	19.7	8.3	3.5	2.5	2.0				21.0	8.9	3.7	2.6	2.2			
	F22	22.5	9.5	4.0	2.8	2.3				24.0	10.1	4.3	3.0	2.5			
	F27	26.0	11.0	4.6	3.3	2.7				27.7	11.7	4.9	3.5	2.9			
12-13-5	F11	14.8	6.2	2.6						13.8	5.8	2.5					
	F14	16.9	7.1	3.0	2.1					15.7	6.6	2.8	2.0				
	F17	19.7	8.3	3.5	2.5	2.0				18.4	7.7	3.3	2.3				
	F22	22.5	9.5	4.0	2.8	2.3				21.0	8.9	3.7	2.6	2.2			
	F27	26.0	11.0	4.6	3.3	2.7				24.3	10.2	4.3	3.0	2.5			
12-16-5	F11	18.7	7.9	3.3	2.3					12.8	5.4	2.3					
	F14	21.4	9.0	3.8	2.7	2.2				14.6	6.2	2.6					
	F17	24.9	10.5	4.4	3.1	2.6				17.0	7.2	3.0	2.1				
	F22	28.5	12.0	5.1	3.6	2.9				19.5	8.2	3.5	2.4	2.0			
	F27	32.9	13.9	5.9	4.1	3.4				22.5	9.5	4.0	2.8	2.3			
12-25-5	F11	22.6	9.5	4.0	2.8	2.3				6.9	2.9						
	F14	25.9	10.9	4.6	3.2	2.7				7.9	3.3						
	F17	30.2	12.7	5.4	3.8	3.1				9.2	3.9						
	F22	34.5	14.5	6.1	4.3	3.6				10.5	4.4						
	F27	39.8	16.8	7.1	5.0	4.1	2.1			12.1	5.1	2.2					
15-32-5	F11	44.3	18.7	7.9	5.5	4.6	2.3			12.8	5.4	2.3					
	F14	50.6	21.3	9.0	6.3	5.2	2.7			14.6	6.2	2.6					
	F17	59.0	24.9	10.5	7.4	6.1	3.1			17.0	7.2	3.0	2.1				
	F22	67.4	28.4	12.0	8.4	6.9	3.6			19.5	8.2	3.5	2.4	2.0			
	F27	78.0	32.9	13.9	9.7	8.0	4.1			22.5	9.5	4.0	2.8	2.3			
17-10-7	F11	38.3	16.2	6.8	4.8	4.0	2.0			45.2	19.1	8.1	5.7	4.7	2.4		
	F14	43.8	18.5	7.8	5.5	4.5	2.3			51.7	21.8	9.2	6.5	5.3	2.7		
	F17	51.1	21.6	9.1	6.4	5.3	2.7			60.3	25.4	10.7	7.5	6.2	3.2		
	F22	58.4	24.7	10.4	7.3	6.0	3.1			68.9	29.1	12.3	8.6	7.1	3.6		
	F27	67.6	28.5	12.0	8.5	7.0	3.6			79.7	33.6	14.2	10.0	8.2	4.2		
17-13-7	F11	44.3	18.7	7.9	5.5	4.6	2.3			45.2	19.1	8.1	5.7	4.7	2.4		
	F14	50.6	21.3	9.0	6.3	5.2	2.7			51.7	21.8	9.2	6.5	5.3	2.7		
	F17	59.0	24.9	10.5	7.4	6.1	3.1			60.3	25.4	10.7	7.5	6.2	3.2		
	F22	67.4	28.4	12.0	8.4	6.9	3.6			68.9	29.1	12.3	8.6	7.1	3.6		
	F27	78.0	32.9	13.9	9.7	8.0	4.1			79.7	33.6	14.2	10.0	8.2	4.2		
17-14-7	F11	41.3	17.4	7.4	5.2	4.3	2.2			40.3	17.0	7.2	5.0	4.2	2.1		
	F14	47.2	19.9	8.4	5.9	4.9	2.5			46.1	19.4	8.2	5.8	4.8	2.4		
	F17	55.1	23.2	9.8	6.9	5.7	2.9			53.8	22.7	9.6	6.7	5.5	2.8		
	F22	62.9	26.6	11.2	7.9	6.5	3.3			61.4	25.9	10.9	7.7	6.3	3.2		
	F27	72.8	30.7	13.0	9.1	7.5	3.8			71.0	30.0	12.6	8.9	7.3	3.8		

TABLE 3.4 (cont)

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm								Face grain perpendicular to span Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900
17-16-7	F11	43.3	18.3	7.7	5.4	4.5	2.3			31.5	13.3	5.6	3.9	3.2			
	F14	49.4	20.9	8.8	6.2	5.1	2.6			36.0	15.2	6.4	4.5	3.7			
	F17	57.7	24.3	10.3	7.2	5.9	3.0			42.0	17.7	7.5	5.2	4.3	2.2		
	F22	65.9	27.8	11.7	8.2	6.8	3.5			48.0	20.2	8.5	6.0	4.9	2.5		
	F27	76.2	32.2	13.6	9.5	7.9	4.0			55.4	23.4	9.9	6.9	5.7	2.9		
17-16-9	F11	46.2	19.5	8.2	5.8	4.8	2.4			38.3	16.2	6.8	4.8	4.0	2.0		
	F14	52.8	22.3	9.4	6.6	5.4	2.8			43.8	18.5	7.8	5.5	4.5	2.3		
	F17	61.6	26.0	11.0	7.7	6.4	3.3			51.1	21.6	9.1	6.4	5.3	2.7		
	F22	70.4	29.7	12.5	8.8	7.3	3.7			58.4	24.7	10.4	7.3	6.0	3.1		
	F27	81.4	34.3	14.5	10.2	8.4	4.3			67.6	28.5	12.0	8.5	7.0	3.6		
17-25-7	F11	54.1	22.8	9.6	6.8	5.6	2.9			23.6	10.0	4.2	3.0	2.4			
	F14	61.8	26.1	11.0	7.7	6.4	3.3			27.0	11.4	4.8	3.4	2.8			
	F17	72.1	30.4	12.8	9.0	7.4	3.8			31.5	13.3	5.6	3.9	3.2			
	F22	82.4	34.8	14.7	10.3	8.5	4.4			36.0	15.2	6.4	4.5	3.7			
	F27	95.3	40.2	17.0	11.9	9.8	5.0			41.6	17.5	7.4	5.2	4.3	2.2		
19-10-9	F11	56.1	23.6	10.0	7.0	5.8	3.0			59.0	24.9	10.5	7.4	6.1	3.1		
	F14	64.1	27.0	11.4	8.0	6.6	3.4			67.4	28.4	12.0	8.4	6.9	3.6		
	F17	74.7	31.5	13.3	9.3	7.7	3.9			78.7	33.2	14.0	9.8	8.1	4.2		
	F22	85.4	36.0	15.2	10.7	8.8	4.5			89.9	37.9	16.0	11.2	9.3	4.7		
	F27	98.8	41.7	17.6	12.3	10.2	5.2	2.0		104.0	43.9	18.5	13.0	10.7	5.5	2.1	
19-13-7	F11	53.1	22.4	9.5	6.6	5.5	2.8			62.0	26.1	11.0	7.7	6.4	3.3		
	F14	60.7	25.6	10.8	7.6	6.3	3.2			70.8	29.9	12.6	8.9	7.3	3.7		
	F17	70.8	29.9	12.6	8.9	7.3	3.7			82.6	34.8	14.7	10.3	8.5	4.4		
	F22	80.9	34.1	14.4	10.1	8.3	4.3			94.4	39.8	16.8	11.8	9.7	5.0		
	F27	93.6	39.5	16.7	11.7	9.6	4.9			109.0	46.0	19.4	13.6	11.2	5.8	2.2	
19-14-9	F11	60.0	25.3	10.7	7.5	6.2	3.2			50.2	21.2	8.9	6.3	5.2	2.6		
	F14	68.6	28.9	12.2	8.6	7.1	3.6			57.3	24.2	10.2	7.2	5.9	3.0		
	F17	80.0	33.7	14.2	10.0	8.2	4.2			66.9	28.2	11.9	8.4	6.9	3.5		
	F22	91.4	38.6	16.3	11.4	9.4	4.8			76.4	32.2	13.6	9.6	7.9	4.0		
	F27	106.0	44.6	18.8	13.2	10.9	5.6	2.1		88.4	37.3	15.7	11.0	9.1	4.7		
19-16-7	F11	55.1	23.2	9.8	6.9	5.7	2.9			50.2	21.2	8.9	6.3	5.2	2.6		
	F14	62.9	26.6	11.2	7.9	6.5	3.3			57.3	24.2	10.2	7.2	5.9	3.0		
	F17	73.4	31.0	13.1	9.2	7.6	3.9			66.9	28.2	11.9	8.4	6.9	3.5		
	F22	83.9	35.4	14.9	10.5	8.6	4.4			76.4	32.2	13.6	9.6	7.9	4.0		
	F27	97.0	40.9	17.3	12.1	10.0	5.1			88.4	37.3	15.7	11.0	9.1	4.7		
19-25-7	F11	70.8	29.9	12.6	8.9	7.3	3.7			37.4	15.8	6.7	4.7	3.9	2.0		
	F14	80.9	34.1	14.4	10.1	8.3	4.3			42.7	18.0	7.6	5.3	4.4	2.3		
	F17	94.4	39.8	16.8	11.8	9.7	5.0			49.8	21.0	8.9	6.2	5.1	2.6		
	F22	108.0	45.5	19.2	13.5	11.1	5.7	2.2		56.9	24.0	10.1	7.1	5.9	3.0		
	F27	125.0	52.6	22.2	15.6	12.9	6.6	2.5		65.8	27.8	11.7	8.2	6.8	3.5		
25-10-11	F11	147.0	62.2	26.3	18.4	15.2	7.8	3.0		141.0	59.3	25.0	17.6	14.5	7.4	2.8	
	F14	169.0	71.1	30.0	21.1	17.4	8.9	3.4	2.1	161.0	67.8	28.6	20.1	16.5	8.5	3.2	2.0
	F17	197.0	83.0	35.0	24.6	20.3	10.4	3.9	2.5	187.0	79.1	33.4	23.4	19.3	9.9	3.8	2.3
	F22	225.0	94.8	40.0	28.1	23.2	11.9	4.5	2.8	214.0	90.4	38.1	26.8	22.1	11.3	4.3	2.7
	F27	232.0	110.0	46.3	32.5	26.8	13.7	5.2	3.3	232.0	105.0	44.1	31.0	25.5	13.1	5.0	3.1
25-13-9	F11	132.0	55.6	23.5	16.5	13.6	7.0	2.6		130.0	54.8	23.1	16.2	13.4	6.8	2.6	
	F14	151.0	63.5	26.8	18.8	15.5	7.9	3.0		148.0	62.6	26.4	18.5	15.3	7.8	3.0	
	F17	176.0	74.1	31.3	22.0	18.1	9.3	3.5	2.2	173.0	73.0	30.8	21.6	17.8	9.1	3.5	2.2
	F22	201.0	84.7	35.7	25.1	20.7	10.6	4.0	2.5	198.0	83.4	35.2	24.7	20.4	10.4	4.0	2.5
	F27	224.0	97.9	41.3	29.0	23.9	12.2	4.7	2.9	224.0	96.5	40.7	28.6	23.6	12.1	4.6	2.9
25-16-9	F11	126.0	53.1	22.4	15.7	13.0	6.6	2.5		113.0	47.7	20.1	14.1	11.7	6.0	2.3	
	F14	144.0	60.7	25.6	18.0	14.8	7.6	2.9		129.0	54.5	23.0	16.2	13.3	6.8	2.6	
	F17	168.0	70.8	29.9	21.0	17.3	8.9	3.4	2.1	151.0	63.6	26.8	18.9	15.5	8.0	3.0	
	F22	192.0	80.9	34.1	24.0	19.8	10.1	3.8	2.4	172.0	72.7	30.7	21.5	17.8	9.1	3.5	2.2
	F27	218.0	93.6	39.5	27.7	22.8	11.7	4.4	2.8	199.0	84.1	35.5	24.9	20.5	10.5	4.0	2.5
26-25-11	F11	186.0	82.1	34.7	24.3	20.0	10.3	3.9	2.4	116.0	49.0	20.7	14.5	12.0	6.1	2.3	
	F14	212.0	93.9	39.6	27.8	22.9	11.7	4.5	2.8	133.0	55.9	23.6	16.6	13.7	7.0	2.7	
	F17	237.0	110.0	46.2	32.5	26.7	13.7	5.2	3.2	155.0	65.3	27.5	19.3	15.9	8.2	3.1	
	F22	237.0	125.0	52.8	37.1	30.6	15.6	5.9	3.7	177.0	74.6	31.5	22.1	18.2	9.3	3.5	2.2
	F27	237.0	145.0	61.1	42.9	35.3	18.1	6.9	4.3	204.0	86.2	36.4	25.6	21.1	10.8	4.1	2.6

TABLE 3.5: ALLOWABLE CONCRETE PRESSURES FOR FORMWORK PLYWOOD SUPPORTED CONTINUOUSLY OVER THREE OR MORE SPANS (kPa)



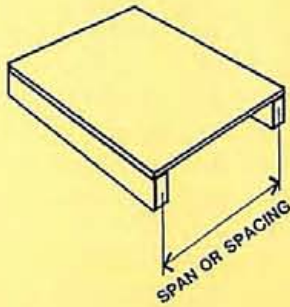
Class 2 requirements of AS3610 — Formface deflection criteria lesser of span/270 or 3mm. Allowable pressures limited by strength are coloured. Strength limited values must be multiplied by 0.8 for plywood formwork continuous over two spans only.

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm								Face grain perpendicular to span Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900
12-10-5	F11	39.4	18.7	7.9	5.5	4.6	2.3			50.5	21.3	9.0	6.3	5.2	2.7		
	F14	50.2	21.3	9.0	6.3	5.2	2.7			57.8	24.4	10.3	7.2	6.0	3.1		
	F17	59.0	24.9	10.5	7.4	6.1	3.1			67.4	28.4	12.0	8.4	6.9	3.6		
	F22	67.4	28.4	12.0	8.4	6.9	3.6			77.0	32.5	13.7	9.6	7.9	4.1		
	F27	77.9	32.9	13.9	9.7	8.0	4.1			86.4	37.6	15.8	11.1	9.2	4.7	2.0	
	12-10-7	F11	44.8	20.0	8.4	5.9	4.9	2.5			50.5	21.3	9.0	6.3	5.2	2.7	
F14		54.1	22.8	9.6	6.8	5.6	2.9			57.8	24.4	10.3	7.2	6.0	3.1		
F17		63.2	26.7	11.2	7.9	6.5	3.3			67.4	28.4	12.0	8.4	6.9	3.6		
F22		72.2	30.5	12.9	9.0	7.4	3.8			77.0	32.5	13.7	9.6	7.9	4.1		
F27		83.5	35.2	14.9	10.4	8.6	4.4			87.8	37.6	15.8	11.1	9.2	4.7	2.0	
12-13-5		F11	44.8	20.0	8.4	5.9	4.9	2.5			44.2	18.7	7.9	5.5	4.6	2.3	
	F14	54.1	22.8	9.6	6.8	5.6	2.9			50.5	21.3	9.0	6.3	5.2	2.7		
	F17	63.2	26.7	11.2	7.9	6.5	3.3			59.0	24.9	10.5	7.4	6.1	3.1		
	F22	72.2	30.5	12.9	9.0	7.4	3.8			67.4	28.4	12.0	8.4	6.9	3.6		
	F27	83.5	35.2	14.9	10.4	8.6	4.4			77.9	32.9	13.9	9.7	8.0	4.1		
	12-16-5	F11	53.8	25.3	10.7	7.5	6.2	3.2			41.1	17.3	7.3	5.1	4.2	2.2	
F14		68.4	28.9	12.2	8.6	7.1	3.6			46.9	19.8	8.4	5.9	4.8	2.5		
F17		80.0	33.8	14.2	10.0	8.2	4.2			54.7	23.1	9.7	6.8	5.6	2.9		
F22		87.8	38.6	16.3	11.4	9.4	4.8	2.0		62.6	26.4	11.1	7.8	6.4	3.3		
F27		87.8	44.6	18.8	13.2	10.9	5.6	2.4		72.3	30.5	12.9	9.0	7.5	3.8		
12-25-5		F11	67.6	30.6	12.9	9.1	7.5	3.8			22.1	9.3	3.9	2.8	2.3		
	F14	77.0	35.0	14.8	10.4	8.6	4.4			25.3	10.7	4.5	3.2	2.6			
	F17	86.4	40.9	17.2	12.1	10.0	5.1	2.2		29.5	12.4	5.3	3.7	3.0			
	F22	86.4	46.7	19.7	13.8	11.4	5.8	2.5		33.7	14.2	6.0	4.2	3.5			
	F27	86.4	54.0	22.8	16.0	13.2	6.8	2.9		39.0	16.4	6.9	4.9	4.0	2.1		
	15-32-5	F11	84.5	59.5	25.3	17.8	14.6	7.5	3.2	2.0	41.1	17.3	7.3	5.1	4.2	2.2	
F14		96.2	68.5	28.9	20.3	16.7	8.6	3.6	2.3	46.9	19.8	8.4	5.9	4.8	2.5		
F17		108.0	79.9	33.7	23.7	19.5	10.0	4.2	2.7	54.7	23.1	9.7	6.8	5.6	2.9		
F22		108.0	81.0	38.5	27.1	22.3	11.4	4.8	3.1	62.6	26.4	11.1	7.8	6.4	3.3		
F27		108.0	81.0	44.6	31.3	25.8	13.2	5.6	3.5	72.3	30.5	12.9	9.0	7.5	3.8		
17-10-7		F11	78.9	44.4	21.9	15.4	12.7	6.5	2.7		95.7	59.5	25.9	18.2	15.0	7.7	3.2
	F14	100.0	56.5	25.1	17.6	14.5	7.4	3.1	2.0	109.0	70.0	29.6	20.8	17.1	8.8	3.7	2.3
	F17	122.0	68.6	29.2	20.5	16.9	8.7	3.7	2.3	122.0	81.7	34.5	24.2	20.0	10.2	4.3	2.7
	F22	122.0	79.2	33.4	23.5	19.3	9.9	4.2	2.6	122.0	91.8	39.4	27.7	22.8	11.7	4.9	3.1
	F27	122.0	91.6	38.6	27.1	22.4	11.4	4.8	3.1	122.0	91.8	45.6	32.0	26.4	13.5	5.7	3.6
	17-13-7	F11	89.6	50.4	25.3	17.8	14.6	7.5	3.2	2.0	98.0	59.5	25.9	18.2	15.0	7.7	3.2
F14		112.0	64.2	28.9	20.3	16.7	8.6	3.6	2.3	112.0	70.0	29.6	20.8	17.1	8.8	3.7	2.3
F17		125.0	77.9	33.7	23.7	19.5	10.0	4.2	2.7	125.0	81.7	34.5	24.2	20.0	10.2	4.3	2.7
F22		125.0	91.4	38.5	27.1	22.3	11.4	4.8	3.1	125.0	93.4	39.4	27.7	22.8	11.7	4.9	3.1
F27		125.0	93.9	44.6	31.3	25.8	13.2	5.6	3.5	125.0	93.9	45.6	32.0	26.4	13.5	5.7	3.6
17-14-7		F11	86.0	48.4	23.6	16.6	13.7	7.0	3.0		95.2	54.6	23.0	16.2	13.3	6.8	2.9
	F14	108.0	61.6	27.0	19.0	15.6	8.0	3.4	2.1	108.0	62.4	26.3	18.5	15.2	7.8	3.3	2.1
	F17	122.0	74.6	31.5	22.1	18.2	9.3	3.9	2.5	122.0	72.8	30.7	21.6	17.8	9.1	3.8	2.4
	F22	122.0	85.3	36.0	25.3	20.8	10.7	4.5	2.8	122.0	83.2	35.1	24.7	20.3	10.4	4.4	2.8
	F27	122.0	91.2	41.6	29.2	24.1	12.3	5.2	3.3	122.0	91.2	40.6	28.5	23.5	12.0	5.1	3.2

TABLE 3.5 (cont)

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm									Face grain perpendicular to span Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900	
		17-16-7	F11	91.4	51.4	24.7	17.4	14.3	7.3	3.1	2.0	80.7	42.6	18.0	12.6	10.4	5.3	2.3
	F14	106.0	65.5	28.3	19.9	16.4	8.4	3.5	2.2	103.0	48.7	20.6	14.4	11.9	6.1	2.6		
	F17	119.0	78.2	33.0	23.2	19.1	9.8	4.1	2.6	119.0	56.8	24.0	16.8	13.9	7.1	3.0		
	F22	119.0	89.3	37.7	26.5	21.8	11.2	4.7	3.0	119.0	65.0	27.4	19.3	15.9	8.1	3.4	2.2	
	F27	119.0	89.6	43.6	30.6	25.2	12.9	5.5	3.4	119.0	75.1	31.7	22.3	18.3	9.4	4.0	2.5	
17-16-9	F11	96.3	54.5	26.4	18.5	15.3	7.8	3.3	2.1	95.0	52.0	21.9	15.4	12.7	6.5	2.7		
	F14	110.0	69.3	30.2	21.2	17.5	9.0	3.8	2.4	110.0	59.4	25.1	17.6	14.5	7.4	3.1	2.0	
	F17	123.0	83.5	35.2	24.7	20.4	10.4	4.4	2.8	123.0	69.3	29.2	20.5	16.9	8.7	3.7	2.3	
	F22	123.0	92.3	40.3	28.3	23.3	11.9	5.0	3.2	123.0	79.2	33.4	23.5	19.3	9.9	4.2	2.6	
	F27	123.0	92.3	46.5	32.7	26.9	13.8	5.8	3.7	123.0	91.6	38.6	27.1	22.4	11.4	4.8	3.1	
17-25-7	F11	93.5	65.5	30.9	21.7	17.9	9.2	3.9	2.4	68.1	32.0	13.5	9.5	7.8	4.0			
	F14	106.0	79.9	35.3	24.8	20.5	10.5	4.4	2.8	86.6	36.5	15.4	10.8	8.9	4.6			
	F17	119.0	89.6	41.2	29.0	23.9	12.2	5.2	3.3	101.0	42.6	18.0	12.6	10.4	5.3	2.3		
	F22	119.0	89.6	47.1	33.1	27.3	14.0	5.9	3.7	115.0	48.7	20.6	14.4	11.9	6.1	2.6		
	F27	119.0	89.6	54.5	38.3	31.5	16.1	6.8	4.3	119.0	56.3	23.8	16.7	13.8	7.0	3.0		
19-10-9	F11	106.0	59.5	32.0	22.5	18.5	9.5	4.0	2.5	107.0	69.6	33.7	23.7	19.5	10.0	4.2	2.7	
	F14	122.0	75.7	36.6	25.7	21.2	10.9	4.6	2.9	122.0	88.6	38.5	27.1	22.3	11.4	4.8	3.1	
	F17	137.0	91.9	42.7	30.0	24.7	12.7	5.3	3.4	137.0	103.0	45.0	31.6	26.0	13.3	5.6	3.6	
	F22	137.0	103.0	48.8	34.3	28.3	14.5	6.1	3.9	137.0	103.0	51.4	36.1	29.7	15.2	6.4	4.1	
	F27	137.0	103.0	56.5	39.6	32.7	16.7	7.1	4.5	137.0	103.0	59.4	41.7	34.4	17.6	7.4	4.7	
19-13-7	F11	98.6	55.5	30.4	21.3	17.6	9.0	3.8	2.4	106.0	74.6	35.4	24.9	20.5	10.5	4.4	2.8	
	F14	121.0	70.6	34.7	24.4	20.1	10.3	4.3	2.7	121.0	90.9	40.5	28.4	23.4	12.0	5.1	3.2	
	F17	136.0	85.7	40.5	28.4	23.4	12.0	5.1	3.2	136.0	102.0	47.2	33.2	27.3	14.0	5.9	3.7	
	F22	136.0	102.0	46.3	32.5	26.8	13.7	5.8	3.7	136.0	102.0	54.0	37.9	31.2	16.0	6.7	4.3	
	F27	136.0	102.0	53.5	37.6	31.0	15.8	6.7	4.2	136.0	102.0	62.4	43.8	36.1	18.5	7.8	4.9	
19-14-9	F11	105.0	64.5	34.3	24.1	19.8	10.2	4.3	2.7	105.0	62.5	28.7	20.1	16.6	8.5	3.6	2.3	
	F14	120.0	82.1	39.2	27.5	22.7	11.6	4.9	3.1	120.0	77.7	32.8	23.0	19.0	9.7	4.1	2.6	
	F17	135.0	99.7	45.7	32.1	26.5	13.6	5.7	3.6	135.0	90.6	38.2	26.8	22.1	11.3	4.8	3.0	
	F22	135.0	101.0	52.3	36.7	30.2	15.5	6.5	4.1	135.0	101.0	43.7	30.7	25.3	12.9	5.5	3.5	
	F27	135.0	101.0	60.4	42.4	35.0	17.9	7.6	4.8	135.0	101.0	50.5	35.5	29.2	15.0	6.3	4.0	
19-16-7	F11	105.0	59.5	31.5	22.1	18.2	9.3	3.9	2.5	105.0	63.5	28.7	20.1	16.6	8.5	3.6	2.3	
	F14	120.0	75.7	36.0	25.3	20.8	10.7	4.5	2.8	120.0	77.7	32.8	23.0	19.0	9.7	4.1	2.6	
	F17	135.0	91.9	42.0	29.5	24.3	12.4	5.3	3.3	135.0	90.6	38.2	26.8	22.1	11.3	4.8	3.0	
	F22	135.0	101.0	48.0	33.7	27.8	14.2	6.0	3.8	135.0	101.0	43.7	30.7	25.3	12.9	5.5	3.5	
	F27	135.0	101.0	55.5	39.0	32.1	16.4	6.9	4.4	135.0	101.0	50.5	35.5	29.2	15.0	6.3	4.0	
19-25-7	F11	105.0	76.6	40.5	28.4	23.4	12.0	5.1	3.2	95.0	50.6	21.4	15.0	12.4	6.3	2.7		
	F14	119.0	89.5	46.3	32.5	26.8	13.7	5.8	3.7	119.0	57.9	24.4	17.1	14.1	7.2	3.1		
	F17	134.0	100.0	54.0	37.9	31.2	16.0	6.7	4.3	134.0	67.5	28.5	20.0	16.5	8.4	3.6	2.3	
	F22	134.0	100.0	61.7	43.3	35.7	18.3	7.7	4.9	134.0	77.2	32.6	22.9	18.8	9.6	4.1	2.6	
	F27	134.0	100.0	71.3	50.1	41.3	21.1	8.9	5.6	134.0	89.2	37.6	26.4	21.8	11.2	4.7	3.0	
25-10-11	F11	145.0	109.0	64.1	50.6	44.5	25.0	10.5	6.7	145.0	109.0	65.8	52.0	45.7	23.8	10.1	6.4	
	F14	165.0	124.0	81.6	64.5	55.8	28.6	12.0	7.6	165.0	124.0	83.7	64.5	53.2	27.2	11.5	7.3	
	F17	186.0	139.0	99.1	78.3	65.1	33.3	14.1	8.9	186.0	139.0	102.0	75.3	62.0	31.8	13.4	8.5	
	F22	186.0	139.0	104.0	90.2	74.4	38.1	16.1	10.1	186.0	139.0	104.0	86.0	70.9	36.3	15.3	9.7	
	F27	186.0	139.0	104.0	92.8	86.0	44.0	18.6	11.7	186.0	139.0	104.0	92.8	82.0	42.0	17.7	11.2	
25-13-9	F11	140.0	105.0	59.0	46.6	41.0	22.3	9.4	6.0	140.0	105.0	64.7	51.1	42.9	22.0	9.3	5.9	
	F14	160.0	120.0	75.1	59.3	49.8	25.5	10.8	6.8	160.0	120.0	82.3	59.6	49.1	25.1	10.6	6.7	
	F17	179.0	134.0	91.2	70.5	58.1	29.8	12.6	7.9	179.0	134.0	98.9	69.5	57.3	29.3	12.4	7.8	
	F22	179.0	134.0	101.0	80.6	66.4	34.0	14.4	9.1	179.0	134.0	101.0	79.4	65.4	33.5	14.1	8.9	
	F27	179.0	134.0	101.0	89.6	76.8	39.3	16.6	10.5	179.0	134.0	101.0	89.6	75.7	38.7	16.3	10.3	
25-16-9	F11	136.0	102.0	58.4	46.2	40.6	21.3	9.0	5.7	136.0	102.0	59.6	45.4	37.4	19.2	8.1	5.1	
	F14	155.0	116.0	74.4	57.8	47.6	24.4	10.3	6.5	155.0	116.0	73.9	51.9	42.8	21.9	9.2	5.8	
	F17	174.0	131.0	90.3	67.4	55.5	28.4	12.0	7.6	174.0	131.0	86.2	60.5	49.9	25.5	10.8	6.8	
	F22	174.0	131.0	98.0	77.0	63.4	32.5	13.7	8.7	174.0	131.0	98.0	69.2	57.0	29.2	12.3	7.8	
	F27	174.0	131.0	98.0	87.1	73.4	37.6	15.8	10.0	174.0	131.0	98.0	80.0	65.9	33.7	14.2	9.0	
26-25-11	F11	149.0	112.0	83.6	66.3	58.3	33.0	13.9	8.8	149.0	104.0	58.4	46.2	38.4	19.7	8.3	5.2	
	F14	169.0	127.0	95.3	84.4	73.6	37.7	15.9	10.1	169.0	127.0	74.4	53.2	43.9	22.5	9.5	6.0	
	F17	190.0	142.0	107.0	95.0	85.9	44.0	18.5	11.7	190.0	142.0	88.4	62.1	51.2	26.2	11.1	7.0	
	F22	190.0	142.0	107.0	95.0	89.1	50.3	21.2	13.4	190.0	142.0	101.0	71.0	58.5	30.0	12.6	8.0	
	F27	190.0	142.0	107.0	95.0	89.1	58.1	24.5	15.5	190.0	142.0	107.0	82.1	67.6	34.6	14.6	9.2	

TABLE 3.6: ALLOWABLE CONCRETE PRESSURES FOR FORMWORK PLYWOOD SIMPLY SUPPORTED OVER A SINGLE SPAN (kPa)



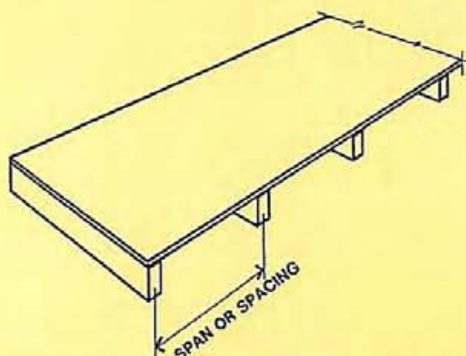
Class 2 requirements of AS3610 — Formface deflection criteria lesser of span/270 or 3mm. Allowable pressures limited by strength are coloured.

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm								Face grain perpendicular to span Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900
12-10-5	F11	18.4	7.7	3.3	2.3					21.0	8.9	3.7	2.6	2.2			
	F14	21.0	8.9	3.7	2.6	2.2				24.0	10.1	4.3	3.0	2.5			
	F17	24.5	10.3	4.4	3.1	2.5				28.0	11.8	5.0	3.5	2.9			
	F22	28.0	11.8	5.0	3.5	2.9				32.0	13.5	5.7	4.0	3.3			
	F27	32.3	13.6	5.8	4.0	3.3				37.0	15.6	6.6	4.6	3.8	2.0		
12-10-7	F11	19.7	8.3	3.5	2.5	2.0				21.0	8.9	3.7	2.6	2.2			
	F14	22.5	9.5	4.0	2.8	2.3				24.0	10.1	4.3	3.0	2.5			
	F17	26.2	11.1	4.7	3.3	2.7				28.0	11.8	5.0	3.5	2.9			
	F22	30.0	12.6	5.3	3.8	3.1				32.0	13.5	5.7	4.0	3.3			
	F27	34.7	14.6	6.2	4.3	3.6				37.0	15.6	6.6	4.6	3.8	2.0		
12-13-5	F11	19.7	8.3	3.5	2.5	2.0				18.4	7.7	3.3	2.3				
	F14	22.5	9.5	4.0	2.8	2.3				21.0	8.9	3.7	2.6	2.2			
	F17	26.2	11.1	4.7	3.3	2.7				24.5	10.3	4.4	3.1	2.5			
	F22	30.0	12.6	5.3	3.8	3.1				28.0	11.8	5.0	3.5	2.9			
	F27	34.7	14.6	6.2	4.3	3.6				32.3	13.6	5.8	4.0	3.3			
12-16-5	F11	24.9	10.5	4.4	3.1	2.6				17.0	7.2	3.0	2.1				
	F14	28.5	12.0	5.1	3.6	2.9				19.5	8.2	3.5	2.4	2.0			
	F17	33.2	14.0	5.9	4.2	3.4				22.7	9.6	4.0	2.8	2.3			
	F22	38.0	16.0	6.8	4.7	3.9	2.0			26.0	11.0	4.6	3.3	2.7			
	F27	43.9	18.5	7.8	5.5	4.5	2.3			30.0	12.7	5.3	3.8	3.1			
12-25-5	F11	30.2	12.7	5.4	3.8	3.1				9.2	3.9						
	F14	34.5	14.5	6.1	4.3	3.6				10.5	4.4						
	F17	40.2	17.0	7.2	5.0	4.1	2.1			12.2	5.2	2.2					
	F22	46.0	19.4	8.2	5.7	4.7	2.4			14.0	5.9	2.5					
	F27	53.1	22.4	9.5	6.6	5.5	2.8			16.2	6.8	2.9	2.0				
15-32-5	F11	59.0	24.9	10.5	7.4	6.1	3.1			17.0	7.2	3.0	2.1				
	F14	67.4	28.4	12.0	8.4	6.9	3.6			19.5	8.2	3.5	2.4	2.0			
	F17	78.7	33.2	14.0	9.8	8.1	4.2			22.7	9.6	4.0	2.8	2.3			
	F22	89.9	37.9	16.0	11.2	9.3	4.7	2.0		26.0	11.0	4.6	3.3	2.7			
	F27	104.0	43.9	18.5	13.0	10.7	5.5	2.3		30.0	12.7	5.3	3.8	3.1			
17-10-7	F11	51.1	21.6	9.1	6.4	5.3	2.7			60.3	25.4	10.7	7.5	6.2	3.2		
	F14	58.4	24.7	10.4	7.3	6.0	3.1			68.9	29.1	12.3	8.6	7.1	3.6		
	F17	68.2	28.8	12.1	8.5	7.0	3.6			80.4	33.9	14.3	10.1	8.3	4.2		
	F22	77.9	32.9	13.9	9.7	8.0	4.1			91.9	38.8	16.4	11.5	9.5	4.9	2.0	
	F27	90.1	38.0	16.0	11.3	9.3	4.8	2.0		106.0	44.8	18.9	13.3	10.9	5.6	2.4	
17-13-7	F11	59.0	24.9	10.5	7.4	6.1	3.1			60.3	25.4	10.7	7.5	6.2	3.2		
	F14	67.4	28.4	12.0	8.4	6.9	3.6			68.9	29.1	12.3	8.6	7.1	3.6		
	F17	78.7	33.2	14.0	9.8	8.1	4.2			80.4	33.9	14.3	10.1	8.3	4.2		
	F22	89.9	37.9	16.0	11.2	9.3	4.7	2.0		91.9	38.8	16.4	11.5	9.5	4.9	2.0	
	F27	104.0	43.9	18.5	13.0	10.7	5.5	2.3		106.0	44.8	18.9	13.3	10.9	5.6	2.4	
17-14-7	F11	55.1	23.2	9.8	6.9	5.7	2.9			53.8	22.7	9.6	6.7	5.5	2.8		
	F14	62.9	26.6	11.2	7.9	6.5	3.3			61.4	25.9	10.9	7.7	6.3	3.2		
	F17	73.4	31.0	13.1	9.2	7.6	3.9			71.7	30.2	12.8	9.0	7.4	3.8		
	F22	83.9	35.4	14.9	10.5	8.6	4.4			81.9	34.6	14.6	10.2	8.4	4.3		
	F27	97.0	40.9	17.3	12.1	10.0	5.1	2.2		94.7	40.0	16.9	11.8	9.8	5.0	2.1	

TABLE 3.6 (cont)

Identification Code	Stress Grade	Face grain parallel to span								Face grain perpendicular to span							
		Span (l) mm								Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900
17-16-7	F11	57.7	24.3	10.3	7.2	5.9	3.0			42.0	17.7	7.5	5.2	4.3	2.2		
	F14	65.9	27.8	11.7	8.2	6.8	3.5			48.0	20.2	8.5	6.0	4.9	2.5		
	F17	76.9	32.5	13.7	9.6	7.9	4.1			55.9	23.6	10.0	7.0	5.8	3.0		
	F22	87.9	37.1	15.6	11.0	9.1	4.6	2.0		63.9	27.0	11.4	8.0	6.6	3.4		
	F27	102.0	42.9	18.1	12.7	10.5	5.4	2.3		73.9	31.2	13.2	9.2	7.6	3.9		
17-16-9	F11	61.6	26.0	11.0	7.7	6.4	3.3			51.1	21.6	9.1	6.4	5.3	2.7		
	F14	70.4	29.7	12.5	8.8	7.3	3.7			58.4	24.7	10.4	7.3	6.0	3.1		
	F17	82.2	34.7	14.6	10.3	8.5	4.3			68.2	28.8	12.1	8.5	7.0	3.6		
	F22	93.9	39.6	16.7	11.7	9.7	5.0	2.1		77.9	32.9	13.9	9.7	8.0	4.1		
	F27	109.0	45.8	19.3	13.6	11.2	5.7	2.4		90.1	38.0	16.0	11.3	9.3	4.8	2.0	
17-25-7	F11	72.1	30.4	12.8	9.0	7.4	3.8			31.5	13.3	5.6	3.9	3.2			
	F14	82.4	34.8	14.7	10.3	8.5	4.4			36.0	15.2	6.4	4.5	3.7			
	F17	96.1	40.6	17.1	12.0	9.9	5.1	2.1		42.0	17.7	7.5	5.2	4.3	2.2		
	F22	110.0	46.4	19.6	13.7	11.3	5.8	2.4		48.0	20.2	8.5	6.0	4.9	2.5		
	F27	127.0	53.6	22.6	15.9	13.1	6.7	2.8		55.4	23.4	9.9	6.9	5.7	2.9		
19-10-9	F11	74.7	31.5	13.3	9.3	7.7	3.9			78.7	33.2	14.0	9.8	8.1	4.2		
	F14	85.4	36.0	15.2	10.7	8.8	4.5			89.9	37.9	16.0	11.2	9.3	4.7	2.0	
	F17	99.6	42.0	17.7	12.5	10.3	5.3	2.2		105.0	44.3	18.7	13.1	10.8	5.5	2.3	
	F22	114.0	48.0	20.3	14.2	11.7	6.0	2.5		120.0	50.6	21.3	15.0	12.4	6.3	2.7	
	F27	132.0	55.6	23.4	16.5	13.6	6.9	2.9		139.0	58.5	24.7	17.3	14.3	7.3	3.1	2.0
19-13-7	F11	70.8	29.9	12.6	8.9	7.3	3.7			82.6	34.8	14.7	10.3	8.5	4.4		
	F14	80.9	34.1	14.4	10.1	8.3	4.3			94.4	39.8	16.8	11.8	9.7	5.0	2.1	
	F17	94.4	39.8	16.8	11.8	9.7	5.0	2.1		110.0	46.5	19.6	13.8	11.3	5.8	2.5	
	F22	108.0	45.5	19.2	13.5	11.1	5.7	2.4		126.0	53.1	22.4	15.7	13.0	6.6	2.8	
	F27	125.0	52.6	22.2	15.6	12.9	6.6	2.8		146.0	61.4	25.9	18.2	15.0	7.7	3.2	2.1
19-14-9	F11	80.0	33.7	14.2	10.0	8.2	4.2			66.9	28.2	11.9	8.4	6.9	3.5		
	F14	91.4	38.6	16.3	11.4	9.4	4.8	2.0		76.4	32.2	13.6	9.6	7.9	4.0		
	F17	107.0	45.0	19.0	13.3	11.0	5.6	2.4		89.2	37.6	15.9	11.1	9.2	4.7	2.0	
	F22	122.0	51.4	21.7	15.2	12.6	6.4	2.7		102.0	43.0	18.1	12.7	10.5	5.4	2.3	
	F27	141.0	59.4	25.1	17.6	14.5	7.4	3.1	2.0	118.0	49.7	21.0	14.7	12.1	6.2	2.6	
19-16-7	F11	73.4	31.0	13.1	9.2	7.6	3.9			66.9	28.2	11.9	8.4	6.9	3.5		
	F14	83.9	35.4	14.9	10.5	8.6	4.4			76.4	32.2	13.6	9.6	7.9	4.0		
	F17	97.9	41.3	17.4	12.2	10.1	5.2	2.2		89.2	37.6	15.9	11.1	9.2	4.7	2.0	
	F22	112.0	47.2	19.9	14.0	11.5	5.9	2.5		102.0	43.0	18.1	12.7	10.5	5.4	2.3	
	F27	129.0	54.6	23.0	16.2	13.3	6.8	2.9		118.0	49.7	21.0	14.7	12.1	6.2	2.6	
19-25-7	F11	94.4	39.8	16.8	11.8	9.7	5.0	2.1		49.8	21.0	8.9	6.2	5.1	2.6		
	F14	108.0	45.5	19.2	13.5	11.1	5.7	2.4		56.9	24.0	10.1	7.1	5.9	3.0		
	F17	126.0	53.1	22.4	15.7	13.0	6.6	2.8		66.4	28.0	11.8	8.3	6.8	3.5		
	F22	144.0	60.7	25.6	18.0	14.8	7.6	3.2	2.0	75.9	32.0	13.5	9.5	7.8	4.0		
	F27	166.0	70.2	29.6	20.8	17.1	8.8	3.7	2.3	87.8	37.0	15.6	11.0	9.0	4.6	2.0	
25-10-11	F11	162.0	83.0	35.0	24.6	20.3	10.4	4.4	2.8	166.0	79.1	33.4	23.4	19.3	9.9	4.2	2.6
	F14	206.0	94.8	40.0	28.1	23.2	11.9	5.0	3.2	207.0	90.4	38.1	26.8	22.1	11.3	4.8	3.0
	F17	232.0	111.0	46.7	32.8	27.0	13.8	5.8	3.7	232.0	105.0	44.5	31.3	25.8	13.2	5.6	3.5
	F22	232.0	126.0	53.3	37.5	30.9	15.8	6.7	4.2	232.0	121.0	50.8	35.7	29.4	15.1	6.4	4.0
	F27	232.0	146.0	61.7	43.3	35.7	18.3	7.7	4.9	232.0	139.0	58.8	41.3	34.0	17.4	7.4	4.7
25-13-9	F11	149.0	74.1	31.3	22.0	18.1	9.3	3.9	2.5	163.0	73.0	30.8	21.6	17.8	9.1	3.9	2.4
	F14	190.0	84.7	35.7	25.1	20.7	10.6	4.5	2.8	198.0	83.4	35.2	24.7	20.4	10.4	4.4	2.8
	F17	224.0	98.8	41.7	29.3	24.1	12.4	5.2	3.3	224.0	97.3	41.1	28.8	23.8	12.2	5.1	3.2
	F22	224.0	113.0	47.6	33.5	27.6	14.1	6.0	3.8	224.0	111.0	46.9	33.0	27.2	13.9	5.9	3.7
	F27	224.0	131.0	55.1	38.7	31.9	16.3	6.9	4.4	224.0	129.0	54.3	38.1	31.4	16.1	6.8	4.3
25-16-9	F11	148.0	70.8	29.9	21.0	17.3	8.9	3.7	2.4	151.0	63.6	26.8	18.9	15.5	8.0	3.4	2.1
	F14	188.0	80.9	34.1	24.0	19.8	10.1	4.3	2.7	172.0	72.7	30.7	21.5	17.8	9.1	3.8	2.4
	F17	218.0	94.4	39.8	28.0	23.1	11.8	5.0	3.2	201.0	84.8	35.8	25.1	20.7	10.6	4.5	2.8
	F22	218.0	108.0	45.5	32.0	26.3	13.5	5.7	3.6	218.0	96.9	40.9	28.7	23.7	12.1	5.1	3.2
	F27	218.0	125.0	52.6	37.0	30.5	15.6	6.6	4.2	218.0	112.0	47.3	33.2	27.4	14.0	5.9	3.7
26-25-11	F11	186.0	110.0	46.2	32.5	26.7	13.7	5.8	3.7	148.0	65.3	27.5	19.3	15.9	8.2	3.4	2.2
	F14	212.0	125.0	52.8	37.1	30.6	15.6	6.6	4.2	177.0	74.6	31.5	22.1	18.2	9.3	3.9	2.5
	F17	237.0	146.0	61.6	43.3	35.7	18.3	7.7	4.9	206.0	87.0	36.7	25.8	21.2	10.9	4.6	2.9
	F22	237.0	167.0	70.4	49.4	40.7	20.9	8.8	5.6	236.0	99.5	42.0	29.5	24.3	12.4	5.2	3.3
	F27	237.0	178.0	81.4	57.2	47.1	24.1	10.2	6.4	237.0	115.0	48.5	34.1	28.1	14.4	6.1	3.8

TABLE 3.7: ALLOWABLE CONCRETE PRESSURES FOR FORMWORK PLYWOOD SUPPORTED CONTINUOUSLY OVER THREE OR MORE SPANS (kPa)



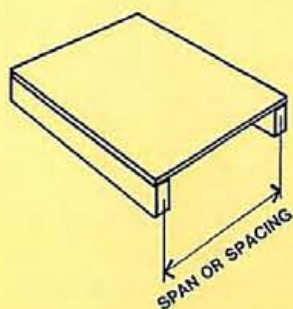
Classes 3 and 4 requirements of AS3610 — Formface deflection criteria greater of span/270 or 3mm. Allowable pressures limited by strength are coloured. Strength limited values must be multiplied by 0.8 for plywood formwork continuous over two spans only.

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm								Face grain perpendicular to span Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900
12-10-5	F11	39.4	22.2	12.5	9.9	7.7	3.2			55.6	31.3	17.6	11.4	8.8	3.6		
	F14	50.2	28.2	15.9	11.4	8.8	3.6			70.7	39.8	20.8	13.0	10.0	4.1		
	F17	61.0	34.3	19.3	13.3	10.3	4.2			85.9	48.3	24.3	15.2	11.7	4.8		
	F22	78.9	44.4	24.3	15.2	11.7	4.8			86.4	62.5	27.8	17.3	13.4	5.5		
	F27	86.4	55.5	28.1	17.5	13.5	5.6			86.4	64.8	32.1	20.0	15.5	6.3	2.0	
12-10-7	F11	44.8	25.2	14.2	10.7	8.2	3.4			53.8	30.3	17.0	11.4	8.8	3.6		
	F14	57.0	32.1	18.1	12.2	9.4	3.9			68.4	38.5	20.8	13.0	10.0	4.1		
	F17	69.3	39.0	21.9	14.2	11.0	4.5			83.1	46.8	24.3	15.2	11.7	4.8		
	F22	87.8	50.4	26.0	16.2	12.6	5.1			87.8	60.5	27.8	17.3	13.4	5.5		
	F27	87.8	63.0	30.1	18.8	14.5	5.9			87.8	65.9	32.1	20.0	15.5	6.3	2.0	
12-13-5	F11	44.8	25.2	14.2	10.7	8.2	3.2			52.0	29.2	15.9	10.0	7.7	3.2		
	F14	57.0	32.1	18.1	12.2	9.4	3.9			66.2	37.2	18.2	11.4	8.8	3.6		
	F17	69.3	39.0	21.9	14.2	11.0	4.5			80.3	45.2	21.3	13.3	10.3	4.2		
	F22	85.6	50.4	26.0	16.2	12.6	5.1			85.6	58.5	24.3	15.2	11.7	4.8		
	F27	85.6	63.0	30.1	18.8	14.5	5.9			85.6	64.2	28.1	17.5	13.5	5.6		
12-16-5	F11	53.8	30.3	17.0	13.4	10.4	4.3			48.4	27.2	14.8	9.2	7.1	2.9		
	F14	68.4	38.5	21.7	15.4	11.9	4.9			61.6	34.7	16.9	10.6	8.1	3.3		
	F17	83.1	46.8	26.3	18.0	13.9	5.7			74.8	42.1	19.7	12.3	9.5	3.9		
	F22	87.8	60.5	33.0	20.6	15.9	6.5	2.1		87.8	54.5	22.6	14.1	10.9	4.5		
	F27	87.8	65.9	38.1	23.8	18.4	7.5	2.4		87.8	65.9	26.1	16.3	12.6	5.2		
12-25-5	F11	67.6	38.3	21.6	16.3	12.6	5.2			30.5	17.1	8.0	5.0	3.8			
	F14	77.0	48.8	27.4	18.7	14.4	5.9			38.8	21.8	9.1	5.7	4.4			
	F17	86.4	59.2	33.3	21.8	16.8	6.9	2.2		47.1	26.5	10.6	6.6	5.1	2.1		
	F22	86.4	64.8	39.9	24.9	19.2	7.9	2.5		61.0	34.3	12.1	7.6	5.9	2.4		
	F27	86.4	64.8	46.1	28.8	22.2	9.1	2.9	2.0	76.2	42.9	14.0	8.8	6.8	2.8		
15-32-5	F11	84.5	59.5	33.5	26.4	23.2	10.1	3.2	2.2	46.6	26.2	14.8	9.2	7.1	2.9		
	F14	96.2	72.2	42.6	33.7	28.2	11.6	3.7	2.5	59.3	33.4	16.9	10.6	8.1	3.3		
	F17	108.0	81.0	51.7	40.9	32.9	13.5	4.3	3.0	72.0	40.5	19.7	12.3	9.5	3.9		
	F22	108.0	81.0	60.7	48.7	37.6	15.4	4.9	3.4	93.2	52.4	22.6	14.1	10.9	4.5		
	F27	108.0	81.0	60.7	54.0	43.5	17.8	5.6	3.9	108.0	65.5	26.1	16.3	12.6	5.2		
17-10-7	F11	78.9	44.4	25.0	19.7	17.3	8.8	2.8		95.7	59.5	33.5	26.4	23.2	10.3	3.3	2.3
	F14	100.0	56.5	31.8	25.1	22.1	10.0	3.2	2.2	109.0	75.7	42.6	33.7	28.9	11.8	3.7	2.6
	F17	122.0	68.6	38.6	30.5	26.8	11.7	3.7	2.6	122.0	91.8	51.7	40.9	33.7	13.8	4.4	3.0
	F22	122.0	88.7	49.9	39.4	32.6	13.4	4.2	2.9	122.0	91.8	66.9	49.8	38.5	15.8	5.0	3.5
	F27	122.0	91.8	62.4	48.8	37.7	15.5	4.9	3.4	122.0	91.8	68.8	57.6	44.5	18.2	5.8	4.0
17-13-7	F11	89.6	50.4	28.4	22.4	19.7	10.1	3.2	2.2	98.0	59.5	33.5	26.4	23.2	10.3	3.3	2.3
	F14	112.0	64.2	36.1	28.5	25.1	11.6	3.7	2.5	112.0	75.7	42.6	33.7	28.9	11.8	3.7	2.6
	F17	125.0	77.9	43.8	34.6	30.4	13.5	4.3	3.0	125.0	91.9	51.7	40.9	33.7	13.8	4.4	3.0
	F22	125.0	93.9	56.7	44.8	37.6	15.4	4.9	3.4	125.0	93.9	66.9	49.8	38.5	15.8	5.0	3.5
	F27	125.0	93.9	70.4	56.0	43.5	17.8	5.6	3.9	125.0	93.9	70.4	57.6	44.5	18.2	5.8	4.0
17-14-7	F11	86.0	48.4	27.2	21.5	18.9	9.4	3.0	2.1	95.2	56.5	31.8	25.1	22.1	9.2	2.9	2.0
	F14	108.0	61.6	34.7	27.4	24.1	10.8	3.4	2.4	108.0	71.9	40.4	31.9	25.7	10.5	3.3	2.3
	F17	122.0	74.8	42.1	33.2	29.2	12.6	4.0	2.8	122.0	87.3	49.1	38.8	30.0	12.3	3.9	2.7
	F22	122.0	91.2	54.5	43.0	35.1	14.4	4.6	3.2	122.0	91.2	63.5	44.4	34.3	14.1	4.4	3.1
	F27	122.0	91.2	68.1	52.6	40.6	16.6	5.3	3.7	122.0	91.2	68.4	51.3	39.7	16.2	5.1	3.6

TABLE 3.7 (cont)

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm								Face grain perpendicular to span Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900
17-16-7	F11	91.4	51.4	28.9	22.9	20.1	9.9	3.1	2.2	80.7	45.4	25.5	20.2	17.6	7.2	2.3	
	F14	106.0	65.5	36.8	29.1	25.6	11.3	3.6	2.5	103.0	57.8	32.5	25.7	20.1	8.2	2.6	
	F17	119.0	79.5	44.7	35.3	31.0	13.2	4.2	2.9	119.0	70.1	39.5	30.3	23.4	9.6	3.0	2.1
	F22	119.0	89.6	57.9	45.7	36.8	15.1	4.8	3.3	119.0	89.6	51.1	34.7	26.8	11.0	3.5	2.4
	F27	119.0	89.6	67.2	55.1	42.6	17.4	5.5	3.8	119.0	89.6	63.8	40.1	31.0	12.7	4.0	2.8
17-16-9	F11	96.3	54.5	30.6	24.2	21.3	10.6	3.3	2.3	95.0	53.4	30.1	23.8	20.9	8.8	2.8	
	F14	110.0	69.3	39.0	30.8	27.1	12.1	3.8	2.7	110.0	68.0	38.3	30.2	24.5	10.0	3.2	2.2
	F17	123.0	84.2	47.3	37.4	32.9	14.1	4.5	3.1	123.0	82.6	46.5	36.7	28.5	11.7	3.7	2.6
	F22	123.0	92.3	61.3	48.4	39.3	16.1	5.1	3.5	123.0	92.3	60.1	42.2	32.6	13.4	4.2	2.9
	F27	123.0	92.3	69.2	58.8	45.5	18.6	5.9	4.1	123.0	92.3	69.2	48.8	37.7	15.5	4.9	3.4
17-25-7	F11	93.5	65.5	36.9	29.1	25.6	12.4	3.9	2.7	68.1	38.3	21.6	17.0	13.2	5.4		
	F14	106.0	79.9	46.9	37.1	32.6	14.1	4.5	3.1	86.7	48.8	27.4	19.5	15.1	6.2	2.0	
	F17	119.0	89.6	57.0	45.0	39.6	16.5	5.2	3.6	105.0	59.2	33.3	22.7	17.6	7.2	2.3	
	F22	119.0	89.6	67.2	58.3	46.0	18.8	6.0	4.1	119.0	76.6	41.6	26.0	20.1	8.2	2.6	
	F27	119.0	89.6	67.2	59.7	53.2	21.8	6.9	4.8	119.0	89.6	48.1	30.1	23.2	9.5	3.0	2.1
19-10-9	F11	106.0	59.5	33.5	26.4	23.2	12.8	4.1	2.8	107.0	69.6	39.1	30.9	27.2	13.5	4.3	3.0
	F14	122.0	75.7	42.6	33.7	29.6	14.7	4.6	3.2	122.0	88.6	49.8	39.4	34.6	15.4	4.9	3.4
	F17	137.0	91.9	51.7	40.9	35.9	17.1	5.4	3.8	137.0	103.0	60.5	47.8	42.0	18.0	5.7	4.0
	F22	137.0	103.0	66.9	52.9	46.5	19.5	6.2	4.3	137.0	103.0	76.9	61.8	50.2	20.6	6.5	4.5
	F27	137.0	103.0	76.9	66.1	55.1	22.6	7.1	5.0	137.0	103.0	76.9	68.4	58.0	23.8	7.5	5.2
19-13-7	F11	98.6	55.5	31.2	24.7	21.7	12.1	3.8	2.7	106.0	74.6	42.0	33.2	29.2	14.2	4.5	3.1
	F14	121.0	70.6	39.7	31.4	27.6	13.9	4.4	3.1	121.0	90.9	53.4	42.2	37.1	16.2	5.1	3.6
	F17	136.0	85.7	48.2	38.1	33.5	16.2	5.1	3.6	136.0	102.0	64.9	51.3	45.1	18.9	6.0	4.1
	F22	136.0	102.0	62.4	49.3	43.3	18.5	5.9	4.1	136.0	102.0	76.5	66.3	52.7	21.6	6.8	4.7
	F27	136.0	102.0	76.5	61.6	52.2	21.4	6.8	4.7	136.0	102.0	76.5	68.0	60.9	25.0	7.9	5.5
19-14-9	F11	105.0	64.5	36.3	28.7	25.2	13.7	4.3	3.0	105.0	62.5	35.2	27.8	24.4	11.5	3.6	2.5
	F14	120.0	82.1	46.2	36.5	32.1	15.7	5.0	3.4	120.0	79.6	44.8	35.4	31.1	13.1	4.2	2.9
	F17	135.0	99.7	56.1	44.3	39.0	18.3	5.8	4.0	135.0	96.6	54.4	42.9	37.3	15.3	4.8	3.4
	F22	135.0	101.0	72.6	57.4	50.4	20.9	6.6	4.6	135.0	101.0	70.3	55.2	42.7	17.5	5.5	3.8
	F27	135.0	101.0	75.7	67.3	59.0	24.2	7.7	5.3	135.0	101.0	75.7	63.9	49.3	20.2	6.4	4.4
19-16-7	F11	105.0	59.5	33.5	26.4	23.2	12.6	4.0	2.8	105.0	63.5	35.7	28.2	24.8	11.5	3.6	2.5
	F14	120.0	75.7	42.6	33.7	29.6	14.4	4.6	3.2	120.0	80.9	45.5	35.9	31.6	13.1	4.2	2.9
	F17	135.0	91.9	51.7	40.9	35.9	16.8	5.3	3.7	135.0	98.2	55.2	43.6	37.3	15.3	4.8	3.4
	F22	135.0	101.0	66.9	52.9	46.5	19.2	6.1	4.2	135.0	101.0	71.5	55.2	42.7	17.5	5.5	3.8
	F27	135.0	101.0	75.7	66.1	54.2	22.2	7.0	4.9	135.0	101.0	75.7	63.9	49.3	20.2	6.4	4.4
19-25-7	F11	105.0	76.6	43.1	34.1	29.9	16.2	5.1	3.6	95.0	53.4	30.1	23.8	20.9	8.5	2.7	
	F14	119.0	89.5	54.9	43.4	38.1	18.5	5.9	4.1	119.0	68.0	38.3	30.2	23.8	9.8	3.1	2.1
	F17	134.0	100.0	66.6	52.6	46.3	21.6	6.8	4.7	134.0	82.6	46.5	36.0	27.8	11.4	3.6	2.5
	F22	134.0	100.0	75.3	66.9	59.9	24.7	7.8	5.4	134.0	100.0	60.1	41.1	31.8	13.0	4.1	2.9
	F27	134.0	100.0	75.3	66.9	62.7	28.5	9.0	6.3	134.0	100.0	75.2	47.6	36.8	15.1	4.8	3.3
25-10-11	F11	145.0	109.0	64.1	50.6	44.5	28.5	10.7	7.4	145.0	109.0	65.8	52.0	45.7	29.2	10.2	7.1
	F14	165.0	124.0	81.6	64.5	56.7	36.3	12.2	8.5	165.0	124.0	83.7	66.2	58.2	36.7	11.6	8.1
	F17	186.0	139.0	99.1	78.3	68.8	44.0	14.2	9.9	186.0	139.0	102.0	80.3	70.6	42.9	13.6	9.4
	F22	186.0	139.0	104.0	92.8	87.0	51.4	16.3	11.3	186.0	139.0	104.0	92.8	87.0	49.0	15.5	10.8
	F27	186.0	139.0	104.0	92.8	87.0	59.4	18.8	13.0	186.0	139.0	104.0	92.8	87.0	56.7	17.9	12.4
25-13-9	F11	140.0	105.0	59.0	46.6	41.0	26.2	9.5	6.6	140.0	105.0	64.7	51.1	44.9	28.7	9.4	6.5
	F14	160.0	120.0	75.1	59.3	52.1	33.4	10.9	7.6	160.0	120.0	82.3	65.0	57.2	33.9	10.7	7.4
	F17	179.0	134.0	91.2	72.0	63.3	40.2	12.7	8.8	179.0	134.0	99.9	79.0	69.4	39.6	12.5	8.7
	F22	179.0	134.0	101.0	89.6	81.9	45.9	14.5	10.1	179.0	134.0	101.0	89.6	84.0	45.2	14.3	9.9
	F27	179.0	134.0	101.0	89.6	84.0	53.1	16.8	11.7	179.0	134.0	101.0	89.6	84.0	52.3	16.5	11.5
25-16-9	F11	136.0	102.0	58.4	46.2	40.6	26.0	9.1	6.3	136.0	102.0	59.6	47.1	41.4	25.9	8.2	5.7
	F14	155.0	116.0	74.4	58.8	51.6	32.9	10.4	7.2	155.0	116.0	75.8	59.9	52.6	29.6	9.4	6.5
	F17	174.0	131.0	90.3	71.3	62.7	38.4	12.1	8.4	174.0	131.0	92.0	72.7	63.9	34.5	10.9	7.6
	F22	174.0	131.0	98.0	87.1	81.1	43.9	13.9	9.6	174.0	131.0	98.0	87.1	81.6	39.4	12.5	8.6
	F27	174.0	131.0	98.0	87.1	81.6	50.7	16.0	11.1	174.0	131.0	98.0	87.1	81.6	45.6	14.4	10.0
26-25-11	F11	149.0	112.0	83.6	66.3	58.3	37.3	14.1	9.8	149.0	104.0	58.4	46.2	40.6	26.0	8.4	5.8
	F14	169.0	127.0	95.3	84.4	74.2	47.5	16.1	11.2	169.0	127.0	74.4	58.8	51.6	30.3	9.6	6.7
	F17	190.0	142.0	107.0	95.0	89.1	57.7	18.8	13.0	190.0	142.0	90.3	71.3	62.7	35.4	11.2	7.8
	F22	190.0	142.0	107.0	95.0	89.1	67.8	21.5	14.9	190.0	142.0	107.0	92.3	81.1	40.4	12.8	8.9
	F27	190.0	142.0	107.0	95.0	89.1	71.2	24.8	17.2	190.0	142.0	107.0	95.0	89.1	46.7	14.8	10.3

TABLE 3.8: ALLOWABLE CONCRETE PRESSURES FOR FORMWORK PLYWOOD SIMPLY SUPPORTED OVER A SINGLE SPAN (kPa)



Classes 3 and 4 requirements of AS3610 — Formface deflection criteria greater of span/270 or 3mm. Allowable pressures limited by strength are coloured.

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm								Face grain perpendicular to span Span (l) mm							
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900
12-10-5	F11	31.6	17.8	6.6	4.1	3.2				44.5	23.9	7.6	4.7	3.7			
	F14	40.2	22.6	7.6	4.7	3.7				56.6	27.3	8.6	5.4	4.2			
	F17	48.8	27.4	8.8	5.5	4.3				68.7	31.9	10.1	6.3	4.9	2.0		
	F22	63.1	31.9	10.1	6.3	4.9	2.0			88.9	36.4	11.5	7.2	5.6	2.3		
	F27	78.9	36.8	11.7	7.3	5.6	2.3			108.0	42.1	13.3	8.3	6.4	2.6		
12-10-7	F11	35.9	20.2	7.1	4.4	3.4				43.0	23.9	7.6	4.7	3.7			
	F14	45.6	25.6	8.1	5.1	3.9				54.8	27.3	8.6	5.4	4.2			
	F17	55.4	29.9	9.5	5.9	4.6				66.5	31.9	10.1	6.3	4.9	2.0		
	F22	71.7	34.1	10.8	6.7	5.2	2.1			86.0	36.4	11.5	7.2	5.6	2.3		
	F27	89.6	39.5	12.5	7.8	6.0	2.5			108.0	42.1	13.3	8.3	6.4	2.6		
12-13-5	F11	35.9	20.2	7.1	4.4	3.4				41.6	20.9	6.6	4.1	3.2			
	F14	45.6	25.6	8.1	5.1	3.9				52.9	23.9	7.6	4.7	3.7			
	F17	55.4	29.9	9.5	5.9	4.6				64.3	27.9	8.8	5.5	4.3			
	F22	71.7	34.1	10.8	6.7	5.2	2.1			83.2	31.9	10.1	6.3	4.9	2.0		
	F27	89.6	39.5	12.5	7.8	6.0	2.5			104.0	36.8	11.7	7.3	5.6	2.3		
12-16-5	F11	43.0	24.2	9.0	5.6	4.3				38.7	19.4	6.1	3.8	3.0			
	F14	54.8	30.8	10.3	6.4	5.0	2.0			49.3	22.2	7.0	4.4	3.4			
	F17	66.5	37.4	12.0	7.5	5.8	2.4			59.8	25.9	8.2	5.1	4.0			
	F22	86.0	43.2	13.7	8.5	6.6	2.7			77.4	29.6	9.4	5.8	4.5			
	F27	108.0	50.0	15.8	9.9	7.6	3.1			96.8	34.2	10.8	6.8	5.2	2.1		
12-25-5	F11	54.5	30.7	10.9	6.8	5.2	2.2			24.4	10.5	3.3	2.1				
	F14	69.4	39.0	12.4	7.8	6.0	2.5			31.0	12.0	3.8	2.4				
	F17	84.2	45.8	14.5	9.1	7.0	2.9			37.7	13.9	4.4	2.8	2.1			
	F22	108.0	52.3	16.6	10.3	8.0	3.3			48.8	15.9	5.0	3.2	2.4			
	F27	108.0	60.5	19.2	12.0	9.2	3.8			58.2	18.4	5.8	3.6	2.8			
15-32-5	F11	84.6	47.6	21.3	13.3	10.3	4.2			37.3	19.4	6.1	3.8	3.0			
	F14	108.0	60.6	24.3	15.2	11.7	4.8			47.5	22.2	7.0	4.4	3.4			
	F17	131.0	73.6	28.4	17.7	13.7	5.6			57.6	25.9	8.2	5.1	4.0			
	F22	135.0	95.2	32.4	20.2	15.6	6.4	2.0		74.6	29.6	9.4	5.8	4.5			
	F27	135.0	101.0	37.5	23.4	18.1	7.4	2.3		93.2	34.2	10.8	6.8	5.2	2.1		
17-10-7	F11	63.1	35.5	18.4	11.5	8.9	3.6			84.6	47.6	21.7	13.6	10.5	4.3		
	F14	80.3	45.2	21.1	13.2	10.2	4.2			108.0	60.6	24.8	15.5	12.0	4.9		
	F17	97.5	54.9	24.6	15.3	11.9	4.9			131.0	73.6	29.0	18.1	14.0	5.7		
	F22	126.0	71.0	28.1	17.5	13.5	5.6			153.0	95.2	33.1	20.7	16.0	6.5	2.1	
	F27	153.0	88.7	32.5	20.3	15.7	6.4	2.0		153.0	115.0	38.3	23.9	18.5	7.6	2.4	
17-13-7	F11	71.7	40.3	21.3	13.3	10.3	4.2			84.6	47.6	21.7	13.6	10.5	4.3		
	F14	91.3	51.3	24.3	15.2	11.7	4.8			108.0	60.6	24.8	15.5	12.0	4.9		
	F17	111.0	62.3	28.4	17.7	13.7	5.6			131.0	73.6	29.0	18.1	14.0	5.7		
	F22	143.0	80.7	32.4	20.2	15.6	6.4	2.0		157.0	95.2	33.1	20.7	16.0	6.5	2.1	
	F27	157.0	101.0	37.5	23.4	18.1	7.4	2.3		157.0	117.0	38.3	23.9	18.5	7.6	2.4	
17-14-7	F11	68.8	38.7	19.9	12.4	9.6	3.9			80.3	45.2	19.4	12.1	9.3	3.8		
	F14	87.6	49.3	22.7	14.2	10.9	4.5			102.0	57.5	22.1	13.8	10.7	4.4		
	F17	106.0	59.8	26.5	16.5	12.8	5.2			124.0	69.8	25.8	16.1	12.5	5.1		
	F22	138.0	77.4	30.2	18.9	14.6	6.0			152.0	90.4	29.5	18.4	14.2	5.8		
	F27	152.0	96.8	35.0	21.8	16.9	6.9	2.2		152.0	108.0	34.1	21.3	16.5	6.7	2.1	

TABLE 3.8 (cont)

Identification Code	Stress Grade	Face grain parallel to span Span (l) mm								Face grain perpendicular to span Span (l) mm																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		225	300	400	450	480	600	800	900	225	300	400	450	480	600	800	900																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		17-16-7	F11	73.1	41.1	20.8	13.0	10.0	4.1			64.5	36.3	15.1	9.4	7.3	3.0				F14	93.1	52.4	23.8	14.8	11.5	4.7			82.1	46.2	17.3	10.8	8.3	3.4				F17	113.0	63.6	27.7	17.3	13.4	5.5			99.7	56.1	20.2	12.6	9.7	4.0				F22	146.0	82.3	31.7	19.8	15.3	6.3	2.0		129.0	72.6	23.0	14.4	11.1	4.6				F27	149.0	103.0	36.6	22.9	17.7	7.2	2.3		149.0	84.2	26.6	16.6	12.9	5.3			17-16-9	F11	77.4	43.6	22.2	13.9	10.7	4.4			76.0	42.8	18.4	11.5	8.9	3.6				F14	98.6	55.4	25.4	15.8	12.2	5.0			96.7	54.4	21.1	13.2	10.2	4.2				F17	120.0	67.3	29.6	18.5	14.3	5.9			117.0	66.1	24.6	15.3	11.9	4.9				F22	154.0	87.1	33.8	21.1	16.3	6.7	2.1		152.0	85.5	28.1	17.5	13.5	5.6				F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4
	F14	93.1	52.4	23.8	14.8	11.5	4.7			82.1	46.2	17.3	10.8	8.3	3.4				F17	113.0	63.6	27.7	17.3	13.4	5.5			99.7	56.1	20.2	12.6	9.7	4.0				F22	146.0	82.3	31.7	19.8	15.3	6.3	2.0		129.0	72.6	23.0	14.4	11.1	4.6				F27	149.0	103.0	36.6	22.9	17.7	7.2	2.3		149.0	84.2	26.6	16.6	12.9	5.3			17-16-9	F11	77.4	43.6	22.2	13.9	10.7	4.4			76.0	42.8	18.4	11.5	8.9	3.6				F14	98.6	55.4	25.4	15.8	12.2	5.0			96.7	54.4	21.1	13.2	10.2	4.2				F17	120.0	67.3	29.6	18.5	14.3	5.9			117.0	66.1	24.6	15.3	11.9	4.9				F22	154.0	87.1	33.8	21.1	16.3	6.7	2.1		152.0	85.5	28.1	17.5	13.5	5.6				F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																		
	F17	113.0	63.6	27.7	17.3	13.4	5.5			99.7	56.1	20.2	12.6	9.7	4.0				F22	146.0	82.3	31.7	19.8	15.3	6.3	2.0		129.0	72.6	23.0	14.4	11.1	4.6				F27	149.0	103.0	36.6	22.9	17.7	7.2	2.3		149.0	84.2	26.6	16.6	12.9	5.3			17-16-9	F11	77.4	43.6	22.2	13.9	10.7	4.4			76.0	42.8	18.4	11.5	8.9	3.6				F14	98.6	55.4	25.4	15.8	12.2	5.0			96.7	54.4	21.1	13.2	10.2	4.2				F17	120.0	67.3	29.6	18.5	14.3	5.9			117.0	66.1	24.6	15.3	11.9	4.9				F22	154.0	87.1	33.8	21.1	16.3	6.7	2.1		152.0	85.5	28.1	17.5	13.5	5.6				F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																				
	F22	146.0	82.3	31.7	19.8	15.3	6.3	2.0		129.0	72.6	23.0	14.4	11.1	4.6				F27	149.0	103.0	36.6	22.9	17.7	7.2	2.3		149.0	84.2	26.6	16.6	12.9	5.3			17-16-9	F11	77.4	43.6	22.2	13.9	10.7	4.4			76.0	42.8	18.4	11.5	8.9	3.6				F14	98.6	55.4	25.4	15.8	12.2	5.0			96.7	54.4	21.1	13.2	10.2	4.2				F17	120.0	67.3	29.6	18.5	14.3	5.9			117.0	66.1	24.6	15.3	11.9	4.9				F22	154.0	87.1	33.8	21.1	16.3	6.7	2.1		152.0	85.5	28.1	17.5	13.5	5.6				F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																						
	F27	149.0	103.0	36.6	22.9	17.7	7.2	2.3		149.0	84.2	26.6	16.6	12.9	5.3			17-16-9	F11	77.4	43.6	22.2	13.9	10.7	4.4			76.0	42.8	18.4	11.5	8.9	3.6				F14	98.6	55.4	25.4	15.8	12.2	5.0			96.7	54.4	21.1	13.2	10.2	4.2				F17	120.0	67.3	29.6	18.5	14.3	5.9			117.0	66.1	24.6	15.3	11.9	4.9				F22	154.0	87.1	33.8	21.1	16.3	6.7	2.1		152.0	85.5	28.1	17.5	13.5	5.6				F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																								
17-16-9	F11	77.4	43.6	22.2	13.9	10.7	4.4			76.0	42.8	18.4	11.5	8.9	3.6				F14	98.6	55.4	25.4	15.8	12.2	5.0			96.7	54.4	21.1	13.2	10.2	4.2				F17	120.0	67.3	29.6	18.5	14.3	5.9			117.0	66.1	24.6	15.3	11.9	4.9				F22	154.0	87.1	33.8	21.1	16.3	6.7	2.1		152.0	85.5	28.1	17.5	13.5	5.6				F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																										
	F14	98.6	55.4	25.4	15.8	12.2	5.0			96.7	54.4	21.1	13.2	10.2	4.2				F17	120.0	67.3	29.6	18.5	14.3	5.9			117.0	66.1	24.6	15.3	11.9	4.9				F22	154.0	87.1	33.8	21.1	16.3	6.7	2.1		152.0	85.5	28.1	17.5	13.5	5.6				F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																												
	F17	120.0	67.3	29.6	18.5	14.3	5.9			117.0	66.1	24.6	15.3	11.9	4.9				F22	154.0	87.1	33.8	21.1	16.3	6.7	2.1		152.0	85.5	28.1	17.5	13.5	5.6				F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																														
	F22	154.0	87.1	33.8	21.1	16.3	6.7	2.1		152.0	85.5	28.1	17.5	13.5	5.6				F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																
	F27	154.0	109.0	39.1	24.4	18.9	7.7	2.5		154.0	103.0	32.5	20.3	15.7	6.4	2.0		17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																		
17-25-7	F11	93.2	52.4	26.0	16.2	12.5	5.1			54.5	30.7	11.3	7.1	5.5	2.2				F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																				
	F14	119.0	66.7	29.7	18.5	14.3	5.9			69.4	39.0	13.0	8.1	6.3	2.6				F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																						
	F17	144.0	81.0	34.7	21.6	16.7	6.8	2.2		84.2	47.4	15.1	9.4	7.3	3.0				F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																								
	F22	149.0	105.0	39.6	24.7	19.1	7.8	2.5		109.0	54.6	17.3	10.8	8.3	3.4				F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																										
	F27	149.0	112.0	45.8	28.6	22.1	9.0	2.9	2.0	136.0	63.2	20.0	12.5	9.6	4.0			19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																												
19-10-9	F11	84.6	47.6	26.8	16.8	13.0	5.3			99.0	55.7	28.4	17.7	13.7	5.6				F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																														
	F14	108.0	60.6	30.8	19.2	14.8	6.1			126.0	70.8	32.4	20.2	15.6	6.4	2.0			F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																
	F17	131.0	73.6	35.9	22.4	17.3	7.1	2.2		153.0	86.0	37.8	23.6	18.2	7.5	2.4			F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																		
	F22	169.0	95.2	41.0	25.6	19.8	8.1	2.6		171.0	111.0	43.2	27.0	20.8	8.5	2.7			F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																				
	F27	171.0	119.0	47.5	29.6	22.9	9.4	3.0	2.1	171.0	128.0	50.0	31.2	24.1	9.9	3.1	2.2	19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																						
19-13-7	F11	78.9	44.4	25.0	15.9	12.3	5.0			106.0	59.7	29.8	18.6	14.4	5.9				F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																								
	F14	100.0	56.5	29.2	18.2	14.1	5.8			135.0	76.0	34.0	21.2	16.4	6.7	2.1			F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																										
	F17	122.0	68.6	34.0	21.2	16.4	6.7	2.1		164.0	92.3	39.7	24.8	19.1	7.8	2.5			F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																												
	F22	158.0	88.7	38.9	24.3	18.8	7.7	2.4		170.0	119.0	45.4	28.3	21.9	9.0	2.8	2.0		F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																														
	F27	170.0	111.0	45.0	28.1	21.7	8.9	2.8	2.0	170.0	128.0	52.5	32.7	25.3	10.4	3.3	2.3	19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																
19-14-9	F11	91.8	51.6	28.8	18.0	13.9	5.7			88.9	50.0	24.1	15.0	11.6	4.8				F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	F14	117.0	65.7	32.9	20.6	15.9	6.5	2.1		113.0	63.7	27.5	17.2	13.3	5.4				F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	F17	142.0	79.8	38.4	24.0	18.5	7.6	2.4		137.0	77.3	32.1	20.1	15.5	6.4	2.0			F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	F22	168.0	103.0	43.9	27.4	21.2	8.7	2.8		168.0	100.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	F27	168.0	126.0	50.8	31.7	24.5	10.0	3.2	2.2	168.0	125.0	42.5	26.5	20.5	8.4	2.7		19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
19-16-7	F11	84.6	47.6	26.5	16.5	12.8	5.2			90.4	50.8	24.1	15.0	11.6	4.8				F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	F14	108.0	60.6	30.2	18.9	14.6	6.0			115.0	64.7	27.5	17.2	13.3	5.4				F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	F17	131.0	73.6	35.3	22.0	17.0	7.0	2.2		140.0	78.5	32.1	20.1	15.5	6.4	2.0			F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	F22	168.0	95.2	40.3	25.2	19.4	8.0	2.5		168.0	102.0	36.7	22.9	17.7	7.3	2.3			F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	F27	168.0	119.0	46.6	29.1	22.5	9.2	2.9	2.0	168.0	126.0	42.5	26.5	20.5	8.4	2.7		19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
19-25-7	F11	109.0	61.3	34.0	21.2	16.4	6.7	2.1		76.0	42.8	18.0	11.2	8.7	3.6				F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	F14	139.0	78.0	38.9	24.3	18.8	7.7	2.4		96.7	54.4	20.5	12.8	9.9	4.1				F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	F17	167.0	94.8	45.4	28.3	21.9	9.0	2.8	2.0	117.0	66.1	23.9	15.0	11.6	4.7				F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	F22	167.0	123.0	51.8	32.4	25.0	10.2	3.2	2.3	152.0	85.5	27.4	17.1	13.2	5.4				F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	F27	167.0	125.0	59.9	37.4	28.9	11.8	3.8	2.6	167.0	100.0	31.6	19.8	15.3	6.3	2.0		25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
25-10-11	F11	162.0	91.2	51.3	40.5	34.2	14.0	4.4	3.1	166.0	93.6	52.6	41.6	32.6	13.4	4.2	2.9		F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	F14	206.0	116.0	65.3	50.6	39.1	16.0	5.1	3.5	207.0	119.0	67.0	48.2	37.2	15.3	4.8	3.4		F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	F17	232.0	141.0	79.2	59.0	45.6	18.7	5.9	4.1	232.0	145.0	81.4	56.2	43.5	17.8	5.6	3.9		F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	F22	232.0	174.0	103.0	67.4	52.1	21.3	6.8	4.7	232.0	174.0	103.0	64.3	49.7	20.3	6.4	4.5		F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	F27	232.0	174.0	125.0	78.0	60.2	24.7	7.8	5.4	232.0	174.0	119.0	74.3	57.4	23.5	7.4	5.2	25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
25-13-9	F11	149.0	83.9	47.2	37.3	30.5	12.5	4.0	2.7	163.0	92.0	51.7	38.9	30.1	12.3	3.9	2.7		F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	F14	190.0	107.0	60.1	45.2	34.9	14.3	4.5	3.1	200.0	117.0	65.8	44.5	34.4	14.1	4.5	3.1		F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	F17	224.0	130.0	72.9	52.7	40.7	16.7	5.3	3.7	224.0	142.0	79.9	51.9	40.1	16.4	5.2	3.6		F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	F22	224.0	168.0	94.4	60.2	46.5	19.1	6.0	4.2	224.0	168.0	95.0	59.3	45.8	18.8	5.9	4.1		F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	F27	224.0	168.0	112.0	69.6	53.8	22.0	7.0	4.8	224.0	168.0	110.0	68.6	53.0	21.7	6.9	4.8	25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
25-16-9	F11	148.0	83.1	46.7	36.9	29.2	12.0	3.8	2.6	151.0	84.7	47.6	33.9	26.2	10.7	3.4	2.4		F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	F14	188.0	106.0	59.5	43.2	33.3	13.7	4.3	3.0	192.0	108.0	60.6	38.8	30.0	12.3	3.9	2.7		F17	218.0	128.0	72.2	50.3	38.9	15.9	5.0	3.5	218.0	131.0	72.5	45.2	34.9	14.3	4.5	3.1		F22	218.0	163.0	92.2	57.5	44.4	18.2	5.8	4.0	218.0	163.0	82.8	51.7	39.9	16.4	5.2	3.6		F27	218.0	163.0	107.0	66.5	51.4	21.1	6.7	4.6	218.0	163.0	95.7	59.8	46.2	18.9	6.0	4.2	26-25-11	F11	186.0	119.0	67.2	53.1	45.1	18.5	5.9	4.1	148.0	83.1	46.7	34.8	26.9	11.0	3.5	2.4		F14	212.0	152.0	85.5	66.8	51.6	21.1	6.7	4.6	188.0	106.0	59.5	39.8	30.7	12.6	4.0	2.8		F17	237.0	178.0	104.0	77.9	60.2	24.6	7.8	5.4	228.0	128.0	72.2	46.4	35.8	14.7	4.7	3.2		F22	237.0	178.0	134.0	89.0	68.8	28.2	8.9	6.2	237.0	166.0	85.0	53.0	41.0	16.8	5.3	3.7		F27	237.0	178.0	134.0	103.0	79.5	32.6	10.3	7.2	237.0	178.0	98.2	61.3	47.4	19.4	6.1	4.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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CHAPTER 4

CONSTRUCTION CONSIDERATIONS

Formwork is an expensive part of the concrete construction process. Its cost can be minimised if it is not treated as an expendable item. Formwork is plant; even though it is plant with a short life. As such it should be constructed to suit its intended life and for best material recovery at the end of that life. Formwork should be designed for ease of handling, erection and stripping which together with effective maintenance and careful storage will assist in ensuring that it can provide the planned number of uses.

The implications of these construction considerations will be examined in this chapter. Most details and workmanship standards will relate to achievement of colour control and the higher quality concrete surfaces: Classes 1 and 2 to AS3610. Achievement of the less stringent concrete surface classes of 3, 4 and 5 will not necessarily need all these details or such high quality workmanship. The formworker must judge the changes that are appropriate in each particular case.

The Formface

Formface considerations start with being realistic about what can be achieved. Monks (34) states:

“Concrete can be made dimensionally accurate within close limits, and the surface can be made smooth and sensibly free of physical irregularities, but it is unrealistic to demand large smooth areas of visual concrete. Because, even when other blemishes are avoided, the surfaces are never completely uniform in colour.”

and

“...a specification which calls for the formed concrete to have a uniform colour is totally unrealistic.”

Recommendations for the plywood surfacing and the face veneers in relation to the quality of the concrete finish were given in Chapter 1. The loads on the plywood were calculated using the methods detailed in Chapter 2, and the next step of selecting a plywood of suitable construction and stress grade to carry these loads in Chapter 3. These recommendations related to new plywood or plywood in 'as new' condition. AS3610 requires that:

cl. 5.4.1.6 Formwork Surface. The formwork surface shall be constructed in accordance with the formwork documentation and shall be provided with a surface material compatible with the achievement of the specified surface class.

and

cl. 5.3.5.1 General. All materials used in formwork components shall be in accordance with the relevant Australian Standards. (See Clause 4.5.6) Previously used materials shall have structural characteristics at least equal to those of the specified materials. Unidentified materials shall not be used.

The formworker must be aware that every use of the form adds to its deterioration. After repeated uses the time will come when the formface is no longer capable of producing the specified concrete surface quality. The formface must then be replaced. The plywood for the initial and the replacement formfaces must be carefully selected with the repetitive use and concrete surface quality requirements in mind.

Edge Sealing

In Chapter 1 it was stated that plywood formfaces for all classes of concrete surfaces should have edges initially sealed and resealed after cutting. This is to inhibit the entry of moisture into the end grain of the plywood which would result in swelling and deterioration. For Class 1 and 2 concrete surfaces this sealing is even more important. Gould (20) recommends the use of a two coat polyurethane sealer. For a lesser standard of surface the pretreatment of edges with cement slurry (often called pre-ageing) can be effective.

Joint Sealing

It must be remembered that plywood sheets are saw-cut to size both in manufacture and on site. Panel edges therefore are slightly rough as they are a sawn and not a machined surface. Additionally, dimensional tolerances, particularly with regard to edge straightness, occur both at manufacture and during site cutting resulting in an imperfect joint at panel edges. As a result, moisture loss from the concrete can occur between the adjacent plywood sheets. At the worst this can cause loss of fines giving boney concrete. At the least it leads to darker areas from hydration staining which is unacceptable in higher quality colour controlled concrete surfaces. For these cases special tapes are installed at all plywood edges at joints.

The extreme importance of preventing moisture loss at joints is not confined to smooth concrete surfaces. It applies equally to surfaces that are to be treated, e.g. sandblasting, bush-hammering, or jackpicking. The hydration staining from moisture loss and boney concrete from loss of fines is not just skin-deep. While surface treatment can often hide very minor hydration staining it can rarely remove the end results of unsealed formwork joints.

The recommended tapes are 3mm thick closed cell polyurethane foam with one adhesive face. The selected width of the tape is best equal to the width of the absorbent surface. At junctions between adjacent plywood sheets the tape is adhered to the first sheet edge and then the cover tape, which stops it being stretched, is removed. The second sheet is then cramped up to the first compressing the tape to a minimum thickness. The portion of the tape which bulges is then cut flush. The compressed tapes, if properly installed, have the capacity to fill any small voids at the plywood edge and thus inhibit moisture loss.

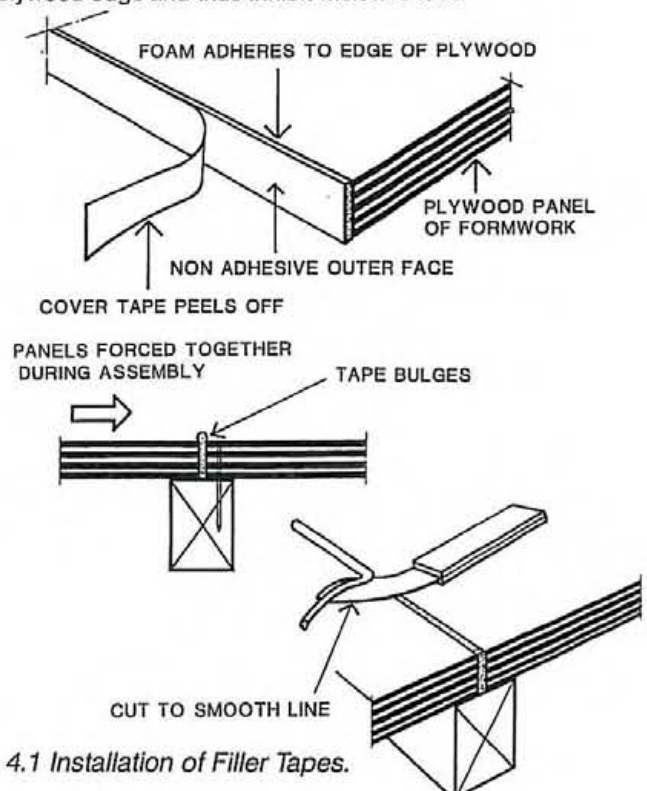


Figure 4.1 Installation of Filler Tapes.

Surface tapes can also be used to prevent moisture loss at plywood sheet junctions but they have some problems, (39). Firstly, where the formwork has had a prior application of release agent adhesion of the tape will be difficult. This can lead to the tape coming free during the pour and getting embedded in the concrete.

Secondly, the tape will form a shallow but clearly visible recess in the concrete face. This is acceptable for Classes 4 and 5 but may not be for Class 3. For plain surfaces for Classes 1 and 2 it is unacceptable. It is only where there is deep surface treatment, such as jack picking or bush hammering, that the groove will be removed and can therefore be permitted.

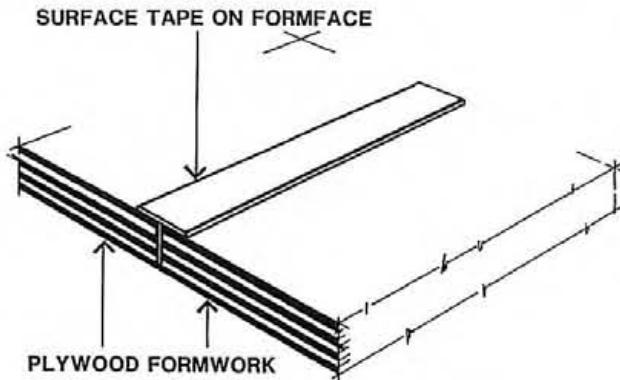


Figure 4.2 Surface Tapes.

Finally, where colour control is specified it will give strips of a colour slightly different to the remainder of the formed face. This is due to the tape usually having a different rate of moisture absorption to the formface.

Face Steps

The fixing of both plywood sheets to the same framing member ensures the best possible alignment of the formfaces. However this alignment cannot always be exactly flush. The tolerances for variations in the thickness of plywood sheets is approximately 1 mm. As a result it is possible to get a 1mm face step within the form, even in Class 1 work. AS3610 permits this for 95% of the readings of this deviation and 2 mm for the remainder.

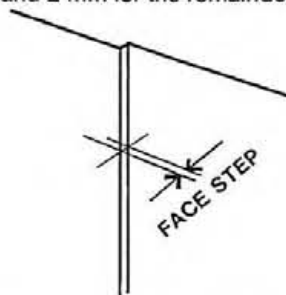


Figure 4.3 Face Step.

Use of Liners

Decorative patterns and textures can be formed into the finished concrete surfaces by the installation of liners on the smooth plywood formwork. The materials used vary widely. They can be plywood cut to shapes, heavy rope fixed to the formface, or an infinite variety of patterns moulded into the face of thin (3mm to 6mm thick), flexible, thermoformed, rubber or elastomeric sheets.

Where the liners cover the whole formface the considerations of surface absorption do not apply and unsealed plywood can be used, (10). However, the more common case consists of the liner only partially covering the face and the remaining plain surface having to comply with its specified Class.



An architectural concrete surface typifying the use of rope liners.

The procedure in achieving a rope finish is described in reference (41). Shallow grooves are cut in the plywood formwork face to locate the ropes. The selection of the plywood must take into account the loss of strength that this grooving causes.

A wide diversity of liners is available and in all cases a suitable plywood type can be obtained to suit their installation.

Assembly Techniques

The objectives of formwork assembly techniques are the production of a strong, rigid form that has ease of handling, erection and stripping. Producing a form that can repeatedly withstand the boisterous attentions of formworkers starts with the formface fixings. The functions of the fixings are:

1. To hold the joints tightly together,
2. To fix the plywood to the framing so that the formwork assembly becomes a cohesive structure for handling and stripping,
3. To enable easy dismantling and maximum material recovery.

In formwork, fixings such as nails and screws are not normally used structurally.

In a soffit form the plywood carrying the concrete spans between the joists which in turn are supported by the bearers; the whole form structure then being carried by its supports, props or frames. The nailing of the plywood, which is usually confined to nailing the plywood panels to the joists on the perimeter of the form, is not involved in this load path. Simply, its function is to hold the plywood surface and the framing together.

Similarly, in wall forms the concrete pressure is resisted by the plywood which spans between the studs. The studs carry the loads to the walers. Tie rods, connecting the walers, then carry the total effect of the concrete pressure. The fixings holding the plywood to the studs and the studs to the walers play no part in the resistance to the concrete pressures. They are there to hold the form in shape while it is being fabricated, erected and climbed on. They are not usually even sufficient to resist the effects of crane hoisting. Extra fixings are required to be designed for hoisting. Where timber framed forms are intended for a number of re-uses, more attention must be given to fixings.

In both the cases of soffit and wall formwork the fixing requirements vary from case to case. The frequency and type of the fixings needed will depend on the proposed erection, handling and use procedures, anticipated environmental loads such as wind and site considerations. This manual cannot cover this wide range of cases and will be confined to describing the types of fixings and giving some information on their use.

If fixings such as nails and screws are intended to be used structurally, for example to achieve composite action in tableforms or to strengthen a wall form for hoisting, then information on their load capacity must be sought from the manufacturer and the type and spacing of the fixings calculated by the formwork designer.

For plywood to timber connections in common formwork applications where the normal fixing is non-structural and is used simply to locate the formwork components, nailing is the easiest and most cost effective fixing method. A practical recommendation is to use nails of minimum 2.5 mm diameter and length 2.5 times the plywood thickness.

If the surface finish requirements permit, screw fixing through the face can be used. The recommended screw is of the 'Bugle Batten' type No.10, 50 mm long, for 17 mm plywood, with the longer 75mm for thicker plywoods. For fixings through the face into cold formed metal framing members, e.g. Zed or 'C' sections, countersunk screws of the 'Rib Wing' type are recommended.

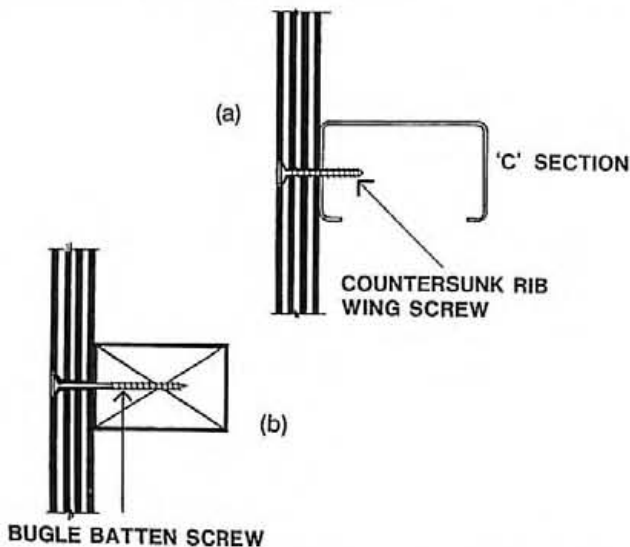


Figure 4.4 Screw Fixing Through the Form Face

In all cases where the fixing penetrates the formface there is the strong possibility that the surface seal will be broken and moisture loss to the formface will occur. Except for formwork which has fibreglass facing applied after assembly, for Class 1 and 2 work, and where colour control is specified for Class 3, this source of moisture loss would have to be patched. The chosen patching material must be able to bond to both the fixing and the plywood and be able to be planed or sanded flush and smooth. When colour control is specified, the colour effects due to possible variations in moisture absorption between the sealed formface and the patching to the fixings should be checked for acceptability on the test panels.

Screw fixings from the backface must not come through the plywood formface but must penetrate the plywood for at least its thickness less 3mm. If a selected standard length screw does not give proper penetration of the plywood then a longer one should be used with washers under the head of the screw to reduce its penetration.

Figures 4.5(a) to (d) shows four common cases of screw fixings from the back face of the plywood. For the fixing of steel members hex head 'Type 17' screws are recommended. These are self drilling through thin metal cold rolled sections but predrilling is required with thicker sections.

For backfixing the plywood to timber formwork framing skew screw fixing can be used, but the results rely on consistently good workmanship. As shown in Figure 4.5(c), minor changes in the angle of the screw can result in either inadequate penetration of the plywood or the screw breaking through the formface. Therefore, this method is not recommended.

One effective method is to fix a small angle to the side of the timber member, and then screw fix the angle to the back of the plywood. Setting the angle with a small gap between it and the plywood assists in getting a tight fixing, and in matching the screw length to the plywood thickness.

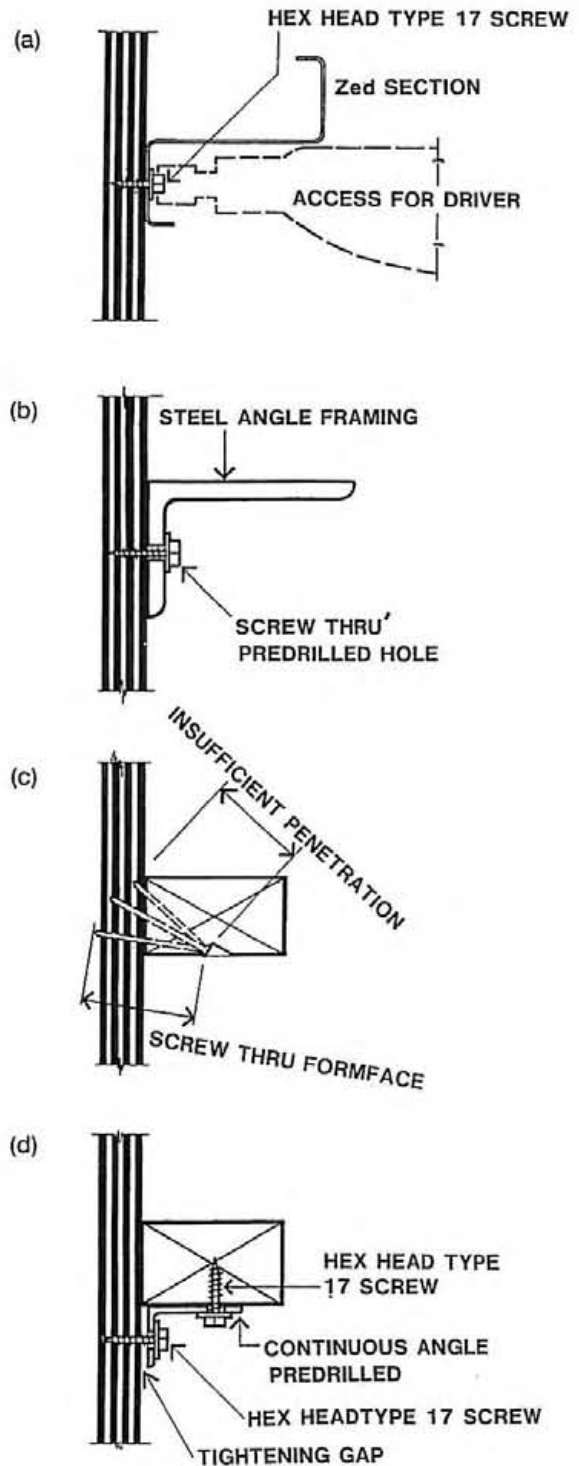


Figure 4.5 Screw Fixing from the Backface.

Joining Adjacent Forms

The technique of butting adjacent sheets to maintain a well aligned and grout tight joint was covered earlier in this chapter. This supports the view that there can be some misalignment, even though it may be quite small (39). Similar results can be expected when joining adjacent formwork assemblies. Like the joint within the form, the plywood sheets both bear on the same framing member with the concrete pressure assisting in keeping the joint grout-tight. This enables a face alignment that is largely governed by the plywood thickness tolerances. When required for architectural concrete the foam tapes should be installed as described previously. Careful sizing of the support members, to which the plywood is fixed, is necessary to ensure a tight seating of the overhanging plywood edge onto the timber member of the other form assembly.

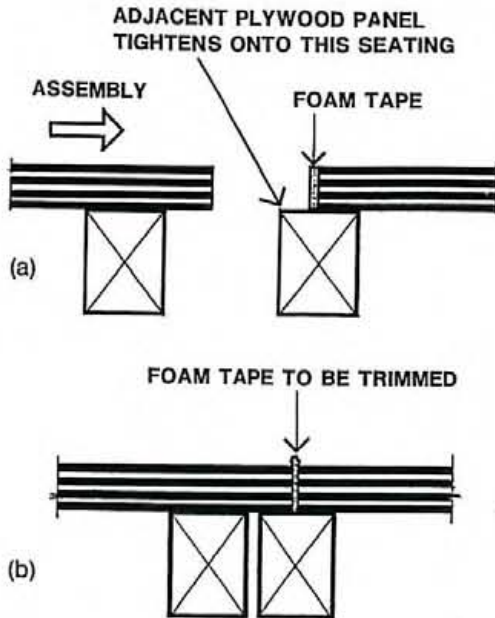


Figure 4.6 Joining Adjacent Forms.

Corner Joint

Equal care is needed at corner joints. For external corner joints the members must be arranged so that the tightening action of the column clamps or wall ties acts at the junction of the two plywood sheets and not between the frames. This is achieved by allowing a gap, of at least 5 mm, between the adjacent framing members. This permits the near total compression of the foam tape plus some 'take up' in the plywood sheets. The column form in Figure 4.7(a) is shown with vertical framing and the wall in Figure 4.7(b) with horizontal joists.

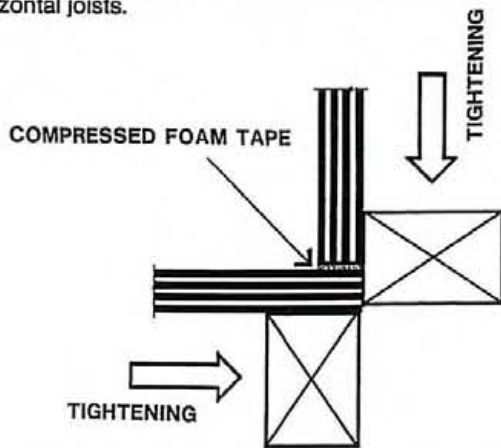


Figure 4.7(a) External Column Joint Detail.

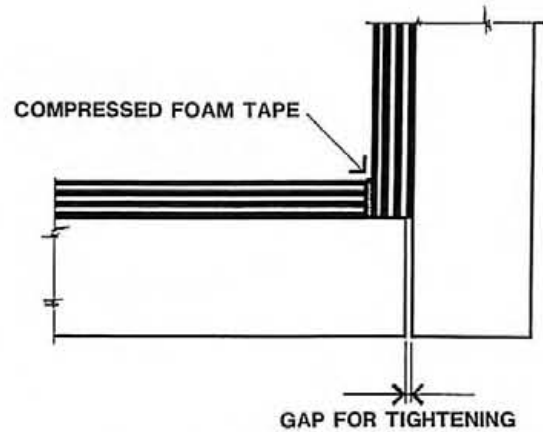


Figure 4.7(b) External Wall Joint Detail.

The internal corner of a wall form is constructed in a similar way. In the example in Figure 4.8 the framing is shown as vertical studs. A gap, as shown, allows the concrete pressure to assist in tightening the joint. In the other direction there is no gap allowed so that the extended plywood sheet overhang can be supported on the framing of the other form assembly without deflecting.

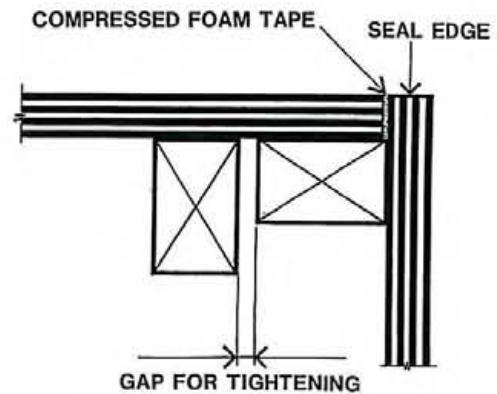


Figure 4.8 Internal Wall Joint Detail.

Construction Joints

Construction joints are needed to divide the total structure into a number of portions, each of which can be practically formed and poured in one operation. The location of these joints can have a significant effect on the structural behaviour of the project. For this reason AS3610, cl. 2.3(f) directs the Project Designer to give information on the:

“Location of any mandatory joints and special procedures for locating other joints.”

However, construction joints can have more than structural significance. Even if it were possible to make the formwork for adjacent pours absolutely identical in absorption and texture, other factors such as ambient temperature, humidity or the uniformity of the concrete mix, would lead to variations in colour across the joint. Where a flush face across the joint is called for, the colour variations are quite obvious. Also any misalignments or face steps, which for Class 1 are permitted to be up to 3mm, are very obvious with flush faced construction joints.

To assist in making the colour and alignment variations less obvious, the forming of grooves in the formface is recommended, (18). As shown in Figure 4.9, stopping the first pour near the top of the inner face can often place the junction of the pours in shadow which helps in obscuring any variations.

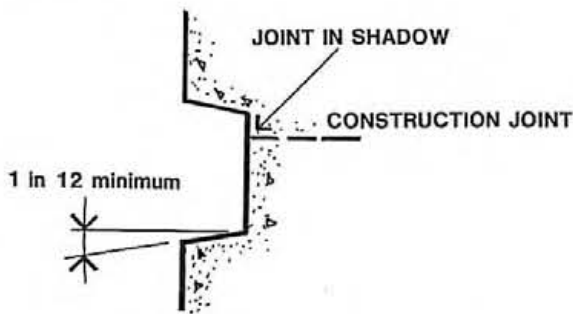


Figure 4.9 Groove at Construction Joint.

The sides of the groove must be raked at 1:12 or steeper to enable easy withdrawal. Formwork stripping is further assisted if the groove form fixing is weak enough to permit the groove form to remain behind when the main formface assembly is stripped, (53). This reduces the possibility of damaging the edges of the groove during stripping.

Construction joints in walls, like stopends, are subject to concrete pressures greater than other parts of the wall. In the body of the wall the energy from the vibrator reflects from the formfaces but dissipates along the wall. At the stopends and construction joints the energy is also reflected leading to an increase in pressure as shown in Figure 4.10.

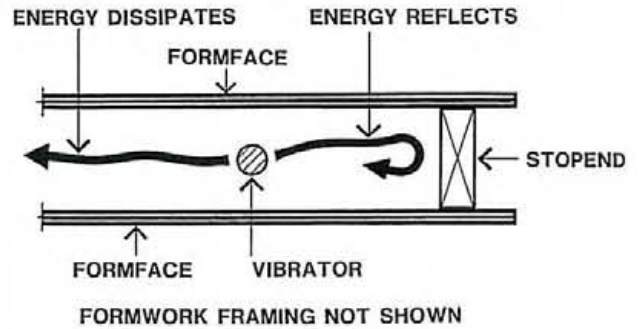


Figure 4.10 Increase in Pressure at Stopends.

At the base of the form, at the junction to a kicker or the wall below, this enhanced pressure will lead to a greater than normal plywood deflection. If this deflection is not prevented, for example by installing a bottom plate to the form, as illustrated in Figure 4.11, there will be considerable loss of water and fines.

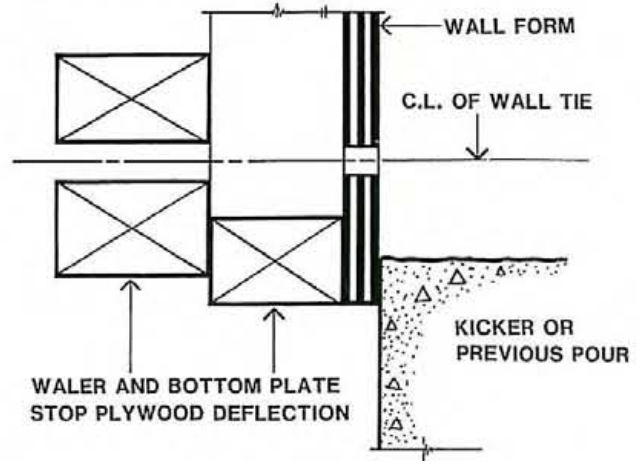
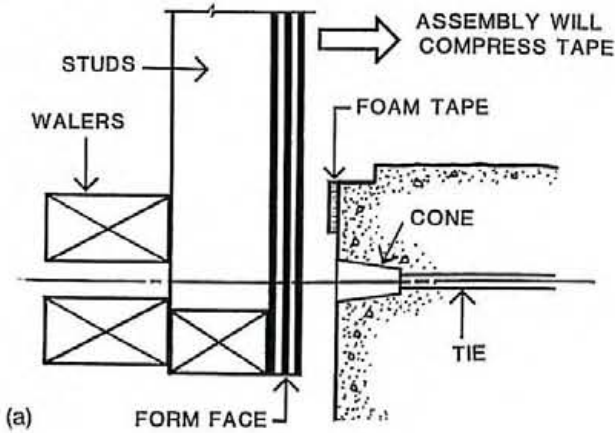


Figure 4.11 Stiffening the Bottom Edge of the Form.

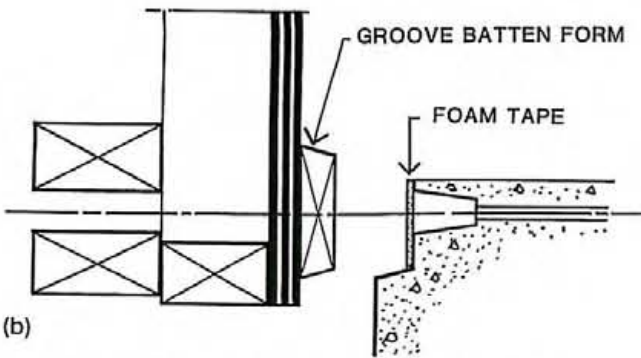


Stiffening the bottom edge of the form.

For higher quality work, the closed-cell polyurethane tapes must be installed in the joint. These are always adhered to the concrete face due to the release agent on the form and the need for accuracy of placement as shown in Figure 4.12. The examples given in Figure 4.12 utilize the existing tie from a previous pour to locate the form and apply pressure to the foam tape.



(a)



(b)

Figure 4.12 Form Base joint for Higher Quality Finish.

Where the wall forms lap onto the end of a previously poured wall, as shown in Figure 4.13, a similar situation occurs. Unless one of the studs exactly coincides with the end of the existing wall, the deflection of the formface will permit moisture and grout loss.

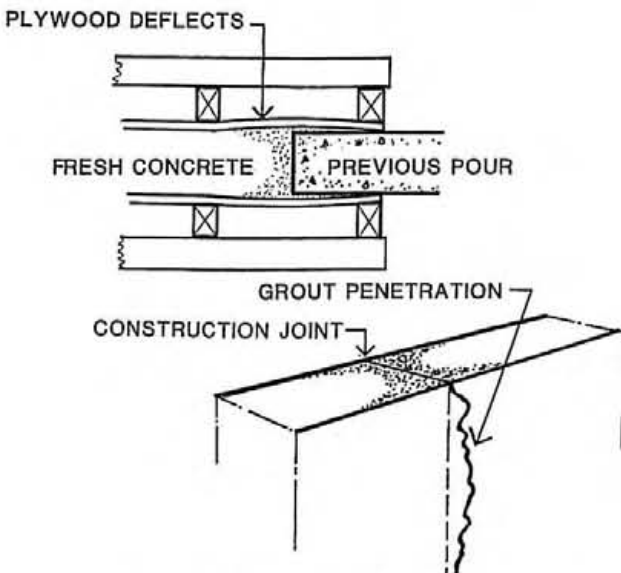


Figure 4.13 Grout and Moisture Loss at a Construction Joint.

Figure 4.14 shows that where there is no stud coinciding with the end of the existing wall, an extra one must be provided to prevent any perceptible plywood deflection.

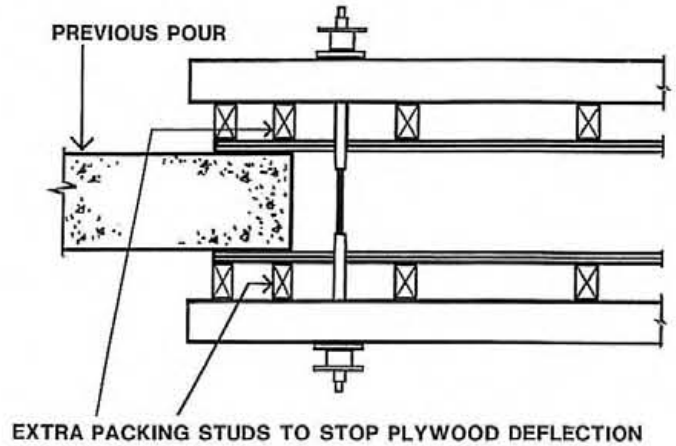


Figure 4.14 Wall Form to Wall Construction Joint.

Wall Ties for Architectural Concrete

The incorrect selection of wall ties can mar the surface of architectural concrete work due to moisture and fines loss. Two examples of unacceptable types are snap ties, and she-bolts.

Snap ties are a through-tie, in one piece from formwork through the concrete to formwork, where the end protruding from the concrete after the stripping of the formwork is snapped off. Figure 4.15 shows three examples of snap ties. They all cause grout loss during construction and result in irregular chipping of the concrete face during the snapping action. Snap ties are considered unsuitable for architectural concrete.

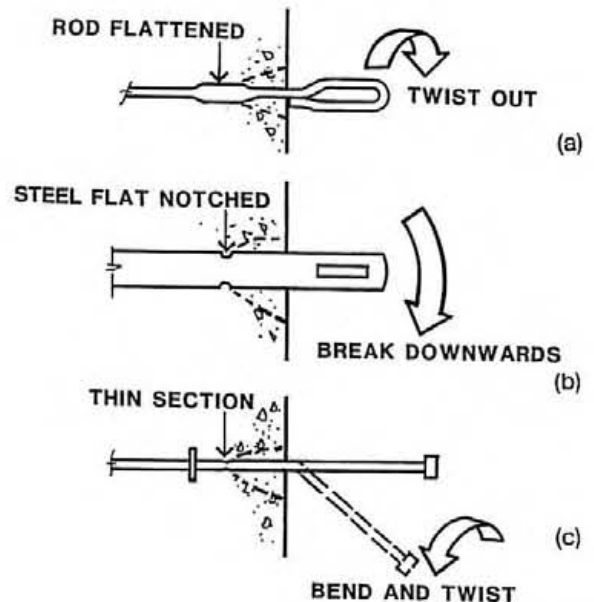


Figure 4.15 Snap Ties.

She-bolts consist of a threaded tie rod, which remains embedded in the wall, and plain shanked screwed bolts with wingnuts at each end. The problem with these comes from the loss of moisture and fines that occurs where the she-bolt passes through the plywood. Further, these ties give no effective control over the thickness of the wall. They hold the forms together and resist the concrete pressure, but do not prevent the forms moving inwards. Other devices are needed for this.

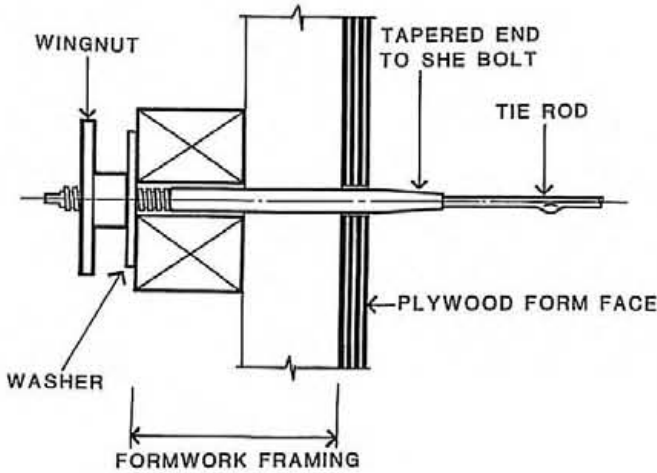


Figure 4.16 She Bolt.

Both bar-ties, which are a common type of through tie, and he-bolts provide a removable cone at the formface which effectively holds the the forms apart and can provide a tight joint that prevents any losses. The bar-tie is both strong and effective but has one potential problem. If the plastic spacer tubes are not cut uniformly to length then some of the cones may not bear tightly on the formface. Moisture and grout losses may result.

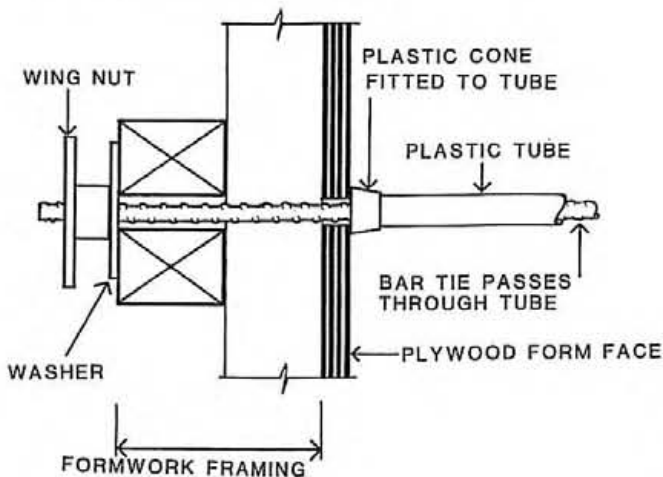


Figure 4.17 Bar Tie.

The he-bolt assembly, as shown in Figure 4.18(a) consists of female threaded cones that connect to the tie rod within the wall and the he-bolts that penetrate through the plywood formfaces and formwork framing. Like the bar tie they hold the forms together and the correct distance apart. The interface between a smooth plywood formface and the cone can provide a grout and moisture tight joint. Overtightening the he-bolt wing nut to improve the tightness of this joint can cause two problems. Firstly the cone will crush into the surface of the plywood which reduces the working life of the form. Secondly, where the he-bolt is located approximately midway between the studs of the formwork framing, the overtightening can flex the plywood outwards and the resultant shape causes quite pronounced dimpling of the concrete surface as illustrated in Figure 4.18(b).

Where the grout and moisture tightness of this junction has to be improved for higher quality concrete work the installation of a closed cell polyurethane foam washer between the cone and the formface is a most effective method. The tightening of the he-bolt can then be limited to that sufficient to compress the foam.

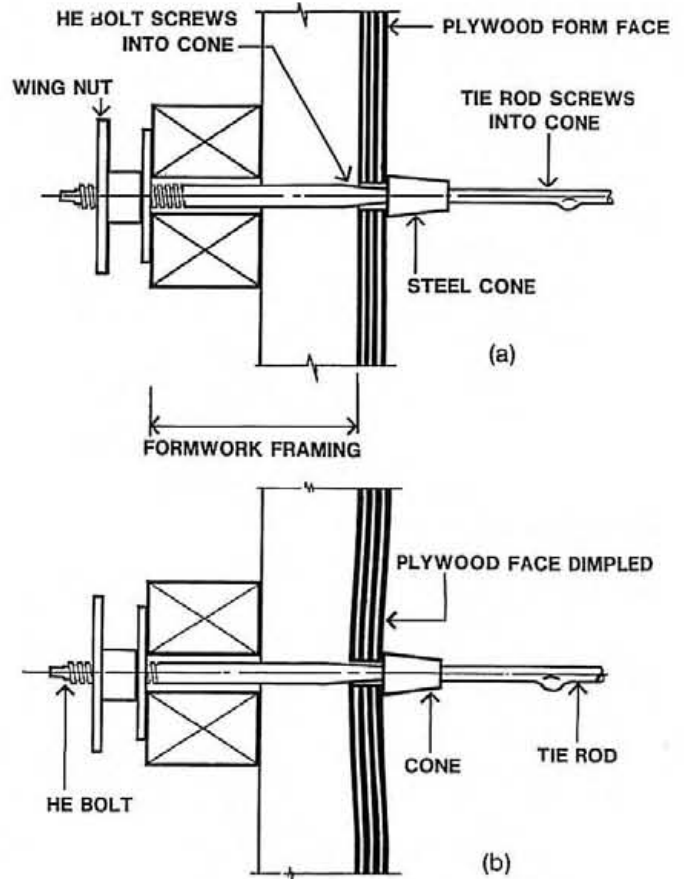


Figure 4.18 He-bolt.

Building Forms for Ease of Stripping

It has been suggested previously that formwork should be regarded as plant as it represents a significant capital outlay. Obviously you get the best out of your plant by proper design to perform a task and by looking after it at all stages of the formwork process. With many formwork assemblies the grout penetrates the joints and grips the form making stripping difficult. Damage due to stripping abuse often results in the formwork plywood being prematurely rejected. Care during stripping and design for ease of stripping can significantly improve formwork reuse and economics.

Where foam tapes are not used between plywood sheets, such as in most soffit forms, grout penetrates the small gaps. This can effectively hold a large area of plywood formwork up in place even when all the framing has been lowered. It should be highlighted that this grout on the edge

of the sheets effectively makes them 'grow'. It is good practice to remove this hardened slurry at each re-use, but, often this is not done. As a result, at the next use, the sheets occupy a slightly wider area.

Additionally, where an enclosed space is being formed, for example a soffit between beams or a wall between pilasters, the grip on the formwork is further increased by concrete shrinkage.

Reasonable ease of stripping can be achieved in a number of ways. For soffit forms one common solution involves the fitting of a stripping band. The bulk of the area of the soffit is formed with plywood panels of standard sizes and the remaining width and length formed with a strip of plywood cut to fit. Figure 4.19 illustrates the method. This fitting of the strip, on each use, can accommodate any variations in the total form dimensions due to deviations in such matters as column centres and beam width.

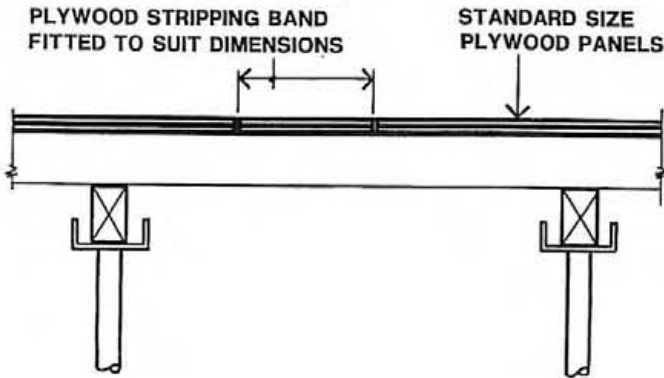


Figure 4.19 Use of a Stripping Band.

These strips are usually located near the middle of the formed area and the stripping of the formwork starts at them, hence the term: stripping band. As is evident from Figure 4.19, the removal of the stripping band will ease the compression in the other plywood panels and they are usually stripped quite easily. It is common for the stripping band to be at least partially damaged during stripping. However, it is usually narrow and hence its replacement cost is low.

Another method, used by one large construction company, utilises disposable sheet metal cover strips as shown in Figure 4.20. It caters for any compressive action from concrete shrinkage, sheet growth from grout penetration as well as deviation in the position of the beams or walls containing this form. The technique is satisfactory for normal soffit forms where Class 3 or 4 concrete surfaces have been specified, but, because of the face steps and the prominent appearance of the strip, it is not usually acceptable for Class 2. It is normally associated with tableforms but can be readily applied to conventional forms. Where the soffit area is wide a number of metal strips can be used.

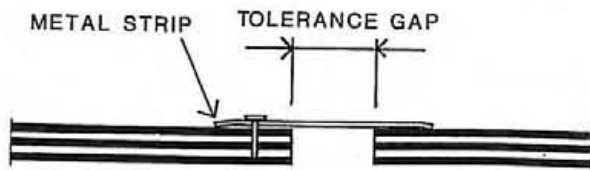


Figure 4.20 Metal Cover Strips.

Where backrops at predetermined locations are needed, a plywood band with metal strips on both sides permits unimpeded stripping. This technique is shown in Figure 4.21 for the case of table forms but is equally applicable to conventional soffit forms.

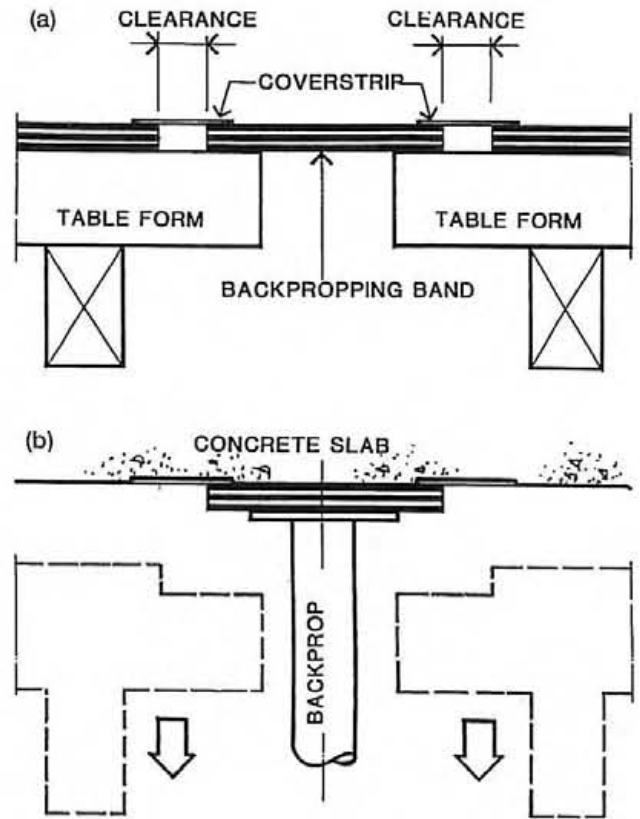


Figure 4.21 A Backpropping Band with Metal Strips.

By using two plywood strips, usually adjacent to each other, the technique shown in Figure 4.19 can be adapted to give control of the location of backrops. One strip is used for the backrops and the other is the stripping band as illustrated in Figure 4.22.

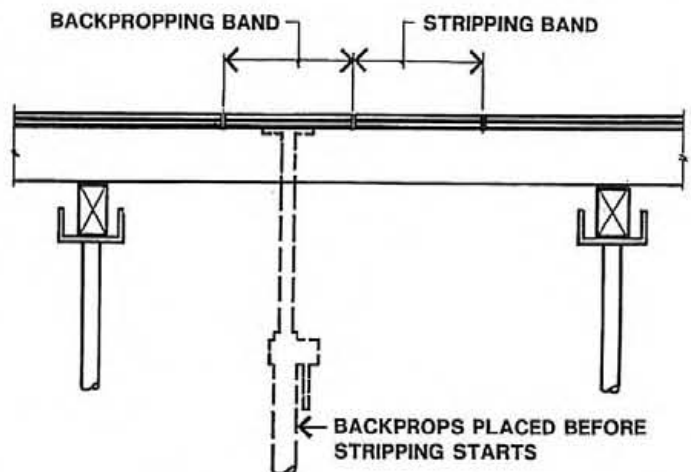


Figure 4.22 Stripping Band and Backpropping Band on Soffit Forms.

Where it is inconvenient to use stripping bands or metal strips in the middle of a span, for example when using a large table form, the tolerance gap can be constructed at the beam or wall face with a disposable sheetmetal angle or a stripping band.

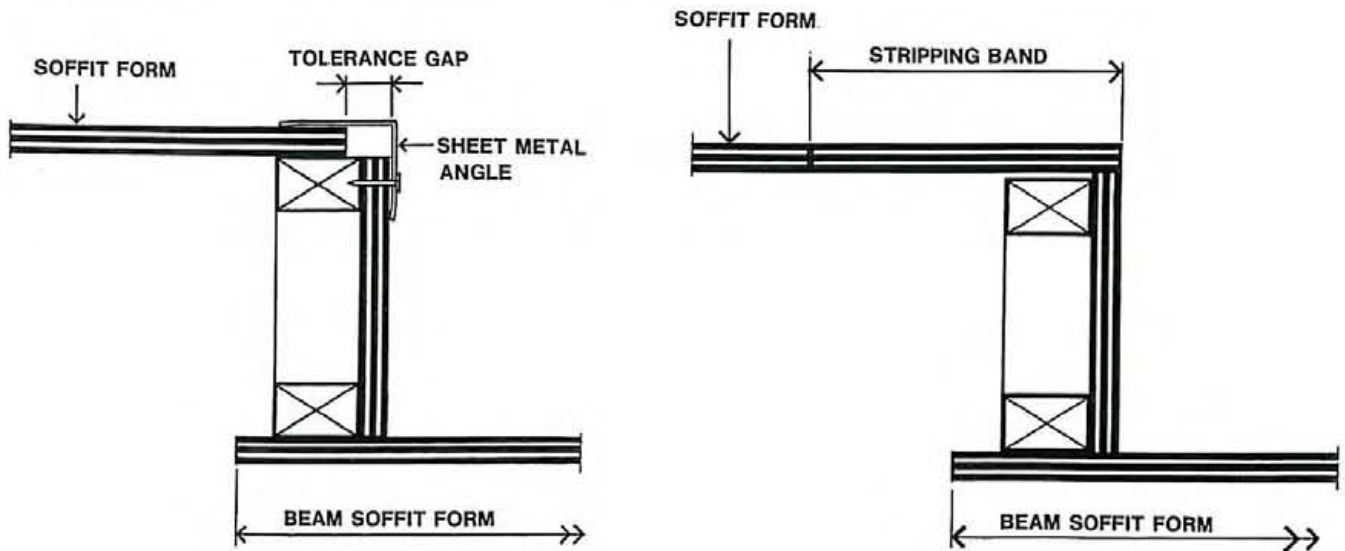


Figure 4.23 Accommodating the Tolerances at the Beam Edge.

Formwork Release Agents

The primary purpose of a release agent is to allow release of the form from the concrete face without damaging either. If release agents are not used or if the correct release agent is not properly applied to the formwork face, adhesion between the form face and the concrete will result in damage to the weaker face during stripping. With the concrete as the weaker surface, scaling occurs with parts of the concrete surface sticking to the form. Scabbing, with parts of the form face sticking to the concrete, results when the concrete strength exceeds that of the form face.

Additional important functions of the release agent include preservation of the form face leading to maximising re-uses, and assisting the development of formface impermeability thereby minimising colour variations.

Common Types of Release Agents

Neat oils. Neat oils are usually mineral oils; they tend to produce blowholes and are not generally recommended.

Neat oils with surfactant. Neat oils with the addition of a small amount of surface activating or wetting agent minimise blowholes and have good penetration and resistance to climatic conditions.

Mould cream emulsions. Emulsions of water in oil tend to be removed by rain but minimise blowholes and are good general-purpose release agents.

Water-soluble emulsions. Emulsions of oil in water produce a dark porous skin that is not durable. They are not recommended and are seldom used.

Chemical release agents. These are small amounts of chemical suspended in a low viscosity oil distillate. The chemical reacts with cement to produce a form of soap at the interface. Recommended for all high-quality work. They should be applied lightly by spray to avoid retardation. Increased cost is compensated by better coverage.

Wax emulsions. A recent development uses a stable wax suspension that acts as a release agent. Advantages claimed are that it dries off completely and is resistant to removal by climatic conditions.

It must be stressed that none of the available recommended release agents have zero influence on the colour of the concrete face. With careful selection and correct application the influence can be minimised.

When white or coloured concrete is specified, particular care must be taken to ascertain which chemical release agent is the most suitable.⁽²⁾ In all cases where colour control is specified the release agent should be tested on small test panels (laboratory samples) before work commences on the specified test panels.

When applying release agents care must be exercised to avoid contamination of the reinforcement or concrete faces. Cleaning up contaminated areas, which in extreme cases may involve dismantling the formwork and sand blasting, can be extremely expensive. Application of too much release agent is as bad as too little. When too much is applied the release agent tends to run to low points in the formwork and puddles. The excess is then dispersed through the concrete during the pour and contaminating the concrete surface.

As the release agent is a thin layer formwork should not stand for too long between application and the concrete pour. Excessive exposure can result in the release agent drying out, migrating down the form face or being washed off by rain. The shorter the time between release agent application and concrete placement, the better.

Application to low-absorbent plywood surfaces such as those provided by factory applied phenolic paper overlays or pretreatment with surface coatings. Neat oils with surface (wetting) agents, and chemical release agents are most suited to these low-absorbent surfaces. One coat should be applied as near as possible to the time of first placement of concrete and prior to each subsequent placement.

Application to absorbent plywood surfaces such as non-overlaid raw plywood. The raw plywood should be pretreated with one or more coats of neat oil with surface (wetting) agent, mould cream emulsion or chemical release agent. An additional coat should be applied as near as possible to the first concrete placement and prior to each subsequent placement.

References (8) and (15) give more detailed information on the action of release agents.

Concrete Placing and its Influence on the Surface Finish

As noted in the introduction, the concrete placing technique is an important, indeed crucial, part of the successful production of high quality concrete surfaces. It is not the purpose of this book to cover concrete placing in detail, but it is relevant that its important aspects be noted so that the reader can understand their importance and their effect on the plywood formwork.

The need for adequate casting and vibrating space was discussed in Chapter 1. This enables ease of placement and a placing rate exceeding 2m/hr. Also the vibrator can be kept approximately 50mm from the formface. In addition to assisting the minimisation of blowholes, this also reduces the chance of occurrence of vibrator burns on the formface.

Most of the problems of concrete compaction and blowhole elimination come from the quality of the vibrator operation. Ford (11) states:

"Vibration is a means to consolidation, and is probably the true art form in concrete work as it has to be done by feel. Consolidation is so essential to good concrete work it is amazing how the vibration chores are often passed from man to man and usually these men are the lowest paid of all the concrete crew."

External form vibrators should not be attached to vertical formfaces for the production of architectural concrete surfaces. The forced vibration of the formface tends to break-up the film of release agent, leading to adhesion (24), and the bubbles of entrapped air tend to move towards the formface leading to an increase in blowholes.

Stripping the Formwork

Some suggestions on constructing formwork for ease of stripping were given previously. This section covers an outline of some basic rules of stripping.

The aim is to remove the formwork economically and with the minimum of fuss in a manner that does not harm the concrete and does the least damage to the formwork. Wherever possible formwork should be removed in a direction at right angles to the concrete face. Usually this is not physically possible and a peeling action of progressive stripping is used. There should be no sliding or dropping action. The resulting shearing action at the interface can harm both form and concrete.

Despite the best efforts of the workers, some minor form and concrete collision will occur during stripping. The possibility of this demands that concrete reach an acceptable minimum strength prior to stripping. Further, the concrete element will have to be, to some extent, self supporting. The minimum compressive strength of the concrete should always be not less than 2 MPa and for architectural concrete 5 MPa. Both of these values may well need to be markedly increased if there are structural requirements to be met. For this reason AS3610 calls for the project documentation to give the **"Minimum stripping times and stripping procedures."** (cl. 2.3(a))

Handling, Cleaning and Storage

New plywood should be left bundled and strapped until shortly before its use. Although usually bonded with exterior Type A or B bonds, plywood for formwork should be stored under cover. Between uses plywood sheets should be cleaned of concrete, restacked in horizontal packs with a minimum of three supports under each pack. Again, for best results the plywood packs should be stored under cover.

With the aim of maximising reuses of formwork assemblies, care is needed to avoid damage and deterioration after stripping and between uses. While small forms can be readily manhandled crane movement is always easier and safer. The forms can be easily moved away from areas of intense site activity and the danger of damage reduced.

Forms for crane movement should be designed and fitted with at least two lifting lugs which are not simply bolted to the top but must be extended down through the form to fix to major members of the formwork frame. The form must be designed to safely carry the loads applied during lifting.

As soon as possible after stripping the form should be cleaned. This should be done with rags or stiff brushes, wire brushes must not be used. Mortar droppings can be scraped off with a wooden wedge, once again no metal tools. Air cleaning is not recommended in a humid climate; the condensate gives it a 'blaster' effect. Finally, the form face should be given at least one application of release agent.

Storage also requires care. If forms are to be stacked flat they should have softwood packers between with care being taken to avoid distortion. Lack of care with this can lead to forms developing a permanent set or twist. A better method of storing fabricated forms is to stand the forms in racks or between posts with support ledgers on the ground. This permits ease of periodic inspection and maintenance and also removal of any form for re-use without disturbing the other forms.

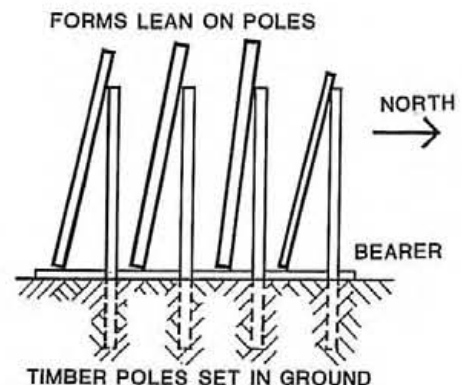
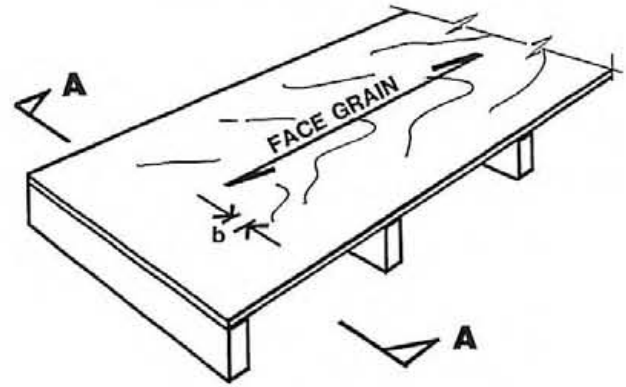
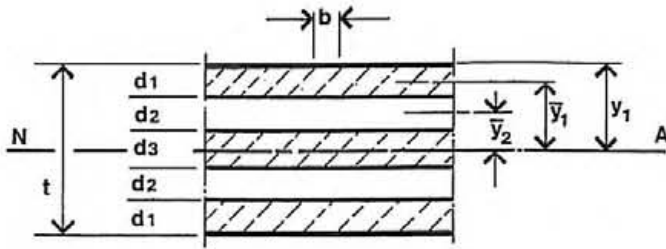


Figure 4.24 A Formwork Storage Rack.

APPENDIX A: CALCULATION OF SECTION PROPERTIES



SECTION AA

Using the Theorem of Parallel Axes and parallel ply theory from AS 1720.1

I (NA) (Stiffness)

$$\text{parallel to face grain per width } b = 2 \left(\frac{1}{12} b d_1^3 + A_1 \bar{y}_1^2 \right) + 2 \times .03 \left(\frac{1}{12} b d_2^3 + A_2 \bar{y}_2^2 \right) + \frac{1}{12} b d_3^3$$

where $A_1 = d_1 b$

$A_2 = d_2 b$

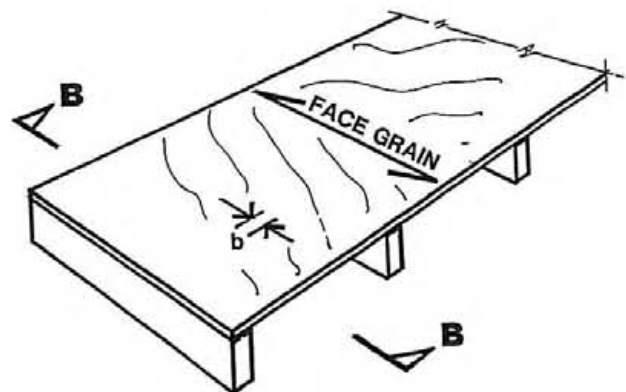
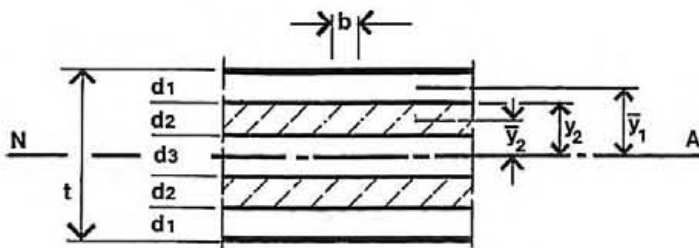
and 0.03 = factor for plies running at right angles to span for I used in stiffness computations only

$$I \text{ (NA) (Strength) parallel to face grain per width } b = 2 \left(\frac{1}{12} b d_1^3 + A_1 \bar{y}_1^2 \right) + \frac{1}{12} b d_3^3 \quad \text{Neglecting cross directional veneers as required by AS 1720.}$$

$$Z \text{ (NA) parallel to face grain} = \frac{I \text{ (NA) (Strength)}}{y_1}$$

where y_1 = distance from neutral axis (NA) which is the centreline of balanced plywood to the farthest veneer which is parallel to the span.

Now for the same plywood used with face grain perpendicular to the span.



SECTION BB

I (NA) Stiffness

$$\text{perpendicular to face grain per width } b = 2 \times 0.03 \left(\frac{1}{12} b d_1^3 + A_1 \bar{y}_1^2 \right) + 2 \left(\frac{1}{12} b d_2^3 + A_2 \bar{y}_2^2 \right) + 0.03 \frac{1}{12} b d_3^3$$

Again the 0.03 factor is used for those veneers at right angles to span

I (NA) Strength

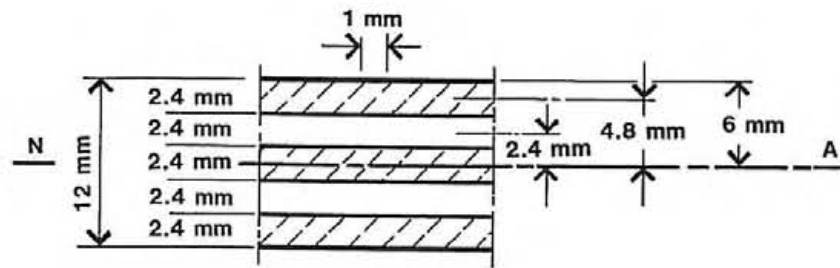
$$\text{perpendicular to face grain per width } b = 2 \left(\frac{1}{12} b d_2^3 + A_2 \bar{y}_2^2 \right)$$

$$Z \text{ (NA) perpendicular to face grain} = \frac{I \text{ (NA) Strength perp.}}{y_2}$$

where y_2 = distance for neutral axis to farthest veneer parallel to the span.

EXAMPLE A1: Compute I and Z parallel and perpendicular to the face grain for standard 12-25-5 ply plywood as identified in Chapter 3.

12-25-5 ply is a nominal 12mm thick plywood comprising 5 × 2.54mm veneers. Allowing approximately 6% for compression and shrinkage the actual construction would be 5 × 2.4mm veneers with a total thickness of 12mm.

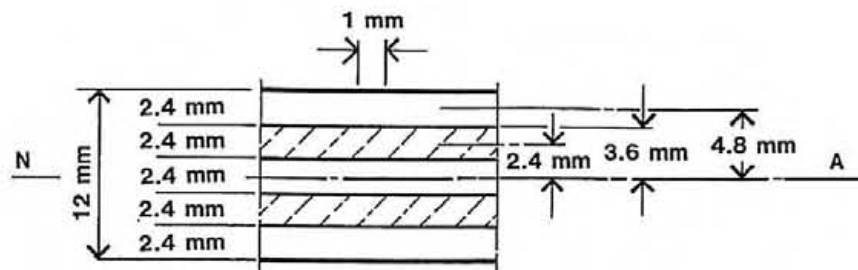


$$\begin{aligned}
 I \text{ (NA) parallel for } &= 2 \left(\frac{1}{12} \times 1 \times 2.4^3 + 2.4 \times 1 \times 4.8^2 \right) + 2 \times .03 \\
 1 \text{ mm width (Stiffness)} & \left(\frac{1}{12} \times 1 \times 2.4^3 + 2.4 \times 1 \times 2.4^2 \right) + \frac{1}{12} \times 1 \times 2.4^3 \\
 &= 115 \text{ mm}^4 / \text{mm width}
 \end{aligned}$$

$$\begin{aligned}
 I \text{ (NA) parallel for } &= \text{Neglecting cross directional veneers} \\
 1 \text{ mm width (Strength)} &= 2 \left(\frac{1}{12} \times 1 \times 2.4^3 + 2.4 \times 1 \times 4.8^2 \right) + \frac{1}{12} \times 1 \times 2.4^3 \\
 &= 114 \text{ mm}^4 / \text{mm width}
 \end{aligned}$$

$$Z \text{ parallel} = \frac{I \text{ (NA) parallel (strength)}}{y_1}$$

$$\begin{aligned}
 y_1 &= 6 \text{ mm} \\
 &= \frac{114}{6} \\
 &= 19.0 \text{ mm}^3 / \text{mm width}
 \end{aligned}$$



$$\begin{aligned}
 I \text{ (NA) perpendicular for } &= 2 \times .03 \left(\frac{1}{12} \times 1 \times 2.4^3 + 2.4 \times 1 \times 4.8^2 \right) + 2 \\
 1 \text{ mm width (Stiffness)} & \left(\frac{1}{12} \times 1 \times 2.4^3 + 2.4 \times 1 \times 2.4^2 \right) + .03 \times \frac{1}{12} \times 1 \times 2.4^3 \\
 &= 35 \text{ mm}^4 / \text{mm width}
 \end{aligned}$$

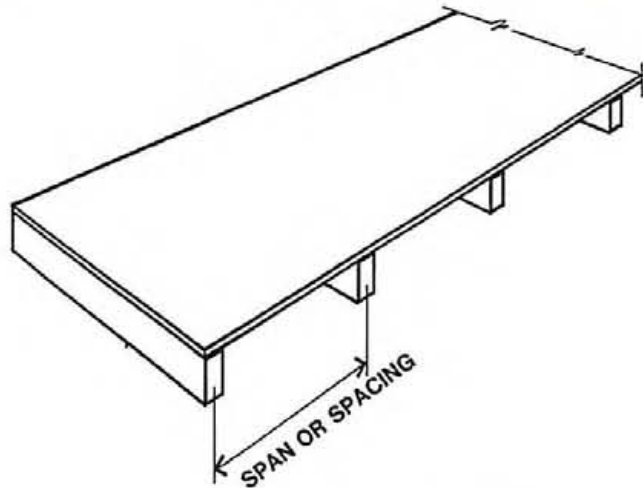
$$\begin{aligned}
 I \text{ (NA) perpendicular for } &= \text{Neglecting cross directional veneers} \\
 1 \text{ mm width (Strength)} &= 2 \left(\frac{1}{12} \times 1 \times 2.4^3 + 2.4 \times 1 \times 2.4^2 \right) \\
 &= 30 \text{ mm}^4 / \text{mm width}
 \end{aligned}$$

$$Z \text{ perpendicular} = \frac{I \text{ (NA) perpendicular (strength)}}{y_2}$$

$$\begin{aligned}
 y_2 &= 3.6 \text{ mm} \\
 &= \frac{30}{3.6} \\
 &= 8.5 \text{ mm}^3 / \text{mm width}
 \end{aligned}$$

APPENDIX B. CALCULATION OF ALLOWABLE CONCRETE PRESSURES

Formwork Plywood Continuously Supported Over Three or More Spans



Bending Stiffness

$$y = \frac{w l^4}{185 E I}$$

where w = load per unit length (per unit width)
 l = span or spacing
 E = Modulus of Elasticity
 I = Moment of Inertia (per unit width)
 y = deflection

$$w = \frac{185 E I y}{l^4} \quad \text{load/unit length (per unit width)}$$

Bending Strength

$$M(\text{max}) = \frac{w l^2}{10}$$

where l = span or spacing
 M = bending moment
 w = load per unit length

$$\text{also } M(\text{max}) = k_1 g_{19} F_b Z$$

where k_1 = 1.65 duration of load factor for formwork application AS 1720

g_{19} = 1.0 plywood in bending AS 1720

F_b = Basic working stress in bending AS 1720

Z = Section Modulus (per unit width)

$$w = \frac{10 k_1 g_{19} F_b Z}{l^2}$$

$$w = \frac{16.5 F_b Z}{l^2} \quad \text{load/unit length (per unit width)}$$

Shear Strength

$$T \text{ max} = \frac{V(\text{max}) Q}{I b}$$

where $T(\text{max})$ = maximum longitudinal shear stress

$V(\text{max})$ = max. transverse load

Q = first moment of area (per unit width)

I = Moment of Inertia

b = width of section

also $I = \frac{1}{12} b d^3$ for homogeneous cross section

and $Q = \frac{1}{8} b d^2$ for homogeneous cross section

so for unit width $b = 1$

$$T \text{ max} = \frac{V \times \frac{1}{8} b d^2}{\frac{1}{12} b d^3 b}$$

$$= \frac{3 V}{2 d} \quad (\text{per unit width})$$

for formply supported over three or more spans

$$V(\text{max}) = \frac{5}{8} w l$$

$$\text{thus } T \text{ max} = \frac{15 w l}{16 d} \quad (\text{per unit width})$$

AS 1720 maximum allowable longitudinal shear stress in plywood

$$T(\text{max}) = k_1 \times 0.4 \times F_s$$

where k_1 = 1.65 duration of load factor from AS 1720

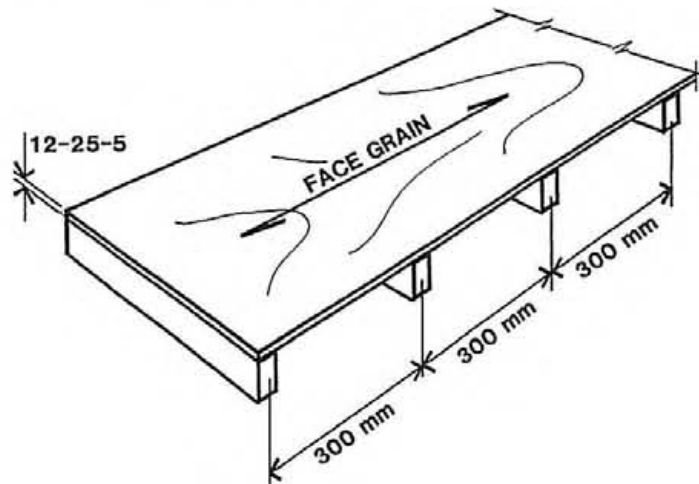
0.4 = longitudinal shear factor from AS 1720

F_s = basic allowable shear stress from AS 1720

$$\text{therefore } w = \frac{0.7 F_s d}{l} \quad \text{load per unit length (per unit width)}$$

Example B1:

Compute the allowable concrete pressure for 12-25-5 ply plywood continuously supported with face grain parallel to span of 300mm. The plywood stress grade is F14. The formwork is to meet class 2 construction i.e., lesser of $l/270$ or 3mm deflection.



Bending Stiffness

$$\text{Maximum allowable deflection} = \frac{\text{span}}{270} \text{ or } 3\text{mm whichever is lesser}$$

$$= \frac{300}{270}$$

$$y (\text{max}) = 1.11\text{mm}$$

$$y (\text{max}) = \frac{wl^4}{185EI}$$

$$\text{From Table 3.1 E for F14} = 12000 \text{ MPa}$$

$$\text{From Table 3.2 I for 12-25-5 ply} = 115\text{mm}^4/\text{mm width parallel to span}$$

$$l = 300\text{mm}$$

$$1.11 = \frac{w(300)^4}{185 \times 115 \times 12000}$$

$$w = .0350\text{N/mm per mm width}$$

$$= 35.0\text{kPa allowable pressure}$$

Bending Strength

$$w = \frac{16.5 F_b Z}{l^2}$$

$$\text{From Table 3.1 } F_b \text{ for F14} = 14 \text{ MPa}$$

$$\text{From Table 3.2 Z for 12-25-5 ply} = 19.0\text{mm}^3/\text{mm width, parallel to span}$$

$$l = 300\text{mm}$$

$$w = \frac{16.5 \times 14 \times 19.0}{300^2}$$

$$= .0488 \text{ N/mm/mm width}$$

$$= 48.8\text{kPa allowable pressure}$$

Shear Strength

$$w = \frac{0.7 F_s d}{l}$$

$$\text{From Table 3.1 } F_s \text{ for F14} = 2.05 \text{ MPa}$$

$$d = 12\text{mm}$$

$$l = 300\text{mm}$$

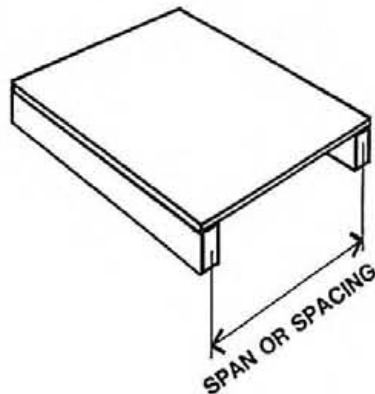
$$w = .0577 \text{ N/mm/mm width}$$

$$= 57.7\text{kPa allowable pressure}$$

Since the allowable value for concrete pressure is the minimum of these values, stiffness is governing the design with an allowable concrete pressure of 35.0kPa.

APPENDIX B. CALCULATION OF ALLOWABLE CONCRETE PRESSURES (cont)

Formwork Plywood Simply Supported Over One Span



Bending Stiffness

$$y \text{ (max)} = \frac{5 w l^4}{384 E I}$$

$$w = \frac{384 E I y}{5 l^4} \text{ load/unit length (per unit width)}$$

Bending Strength

$$M \text{ (max)} = \frac{w l^2}{8}$$

$$\text{and } M \text{ (max)} = k_1 g_{19} F_b Z$$

$$\text{thus } w = \frac{8 k_1 g_{19} F_b Z}{l^2}$$

$$w = \frac{13.2 F_b Z}{l^2} \text{ load/unit length (per unit width)}$$

Shear Strength

$$T \text{ max} = \frac{V \text{ (Max)} Q}{I b}$$

and for simple supports

$$V \text{ max} = \frac{w l}{2}$$

therefore using the formula developed for three span plywood

$$\begin{aligned} T \text{ max} &= \frac{3 V}{2 d} \\ &= \frac{3 w l}{4 d} \text{ (per unit width)} \end{aligned}$$

also from AS 1720

$$T \text{ max} = k_1 \times 0.4 F_s$$

$$w = \frac{0.88 F_s d}{l} \text{ load/unit length (per unit width)}$$

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