SYNOPSYS INC Form S-8 March 06, 2003 As filed with the Securities and Exchange Commission on March 6, 2003

> SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

> > FORM S-8 REGISTRATION STATEMENT Under The Securities Act of 1933

SYNOPSYS, INC. (Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization) 56-1546236 (IRS Employer Identification No.)

700 EAST MIDDLEFIELD ROAD MOUNTAIN VIEW, CALIFORNIA 94043 (Address of principal executive offices) (Zip Code)

Numerical Technologies, Inc. 1997 Stock Plan Numerical Technologies, Inc. 2000 Stock Plan Cadabra Design Libraries Inc. Stock Option Plan Cadabra Design Libraries Inc. U.S. Stock Option Plan

(Full title of the Plans)

AART J. DE GEUS CHIEF EXECUTIVE OFFICER SYNOPSYS, INC. 700 EAST MIDDLEFIELD ROAD MOUNTAIN VIEW, CALIFORNIA 94043 (Name and address of agent for service) (650) 584-5000 (Telephone number, including area code, of agent for service)

CALCULATION OF REGISTRATION FEE

Title of Securities to be Registered	Amount to be Registered (1)	Proposed Maximum Offering Price per Share (2)	Propo Maxi Aggre Offer Price
Common Stock, \$0.01 par value, to be issued under the following plans:			
Numerical Technologies, Inc. 1997 Stock Plan	57,567	\$9.70	\$542 , 6
Numerical Technologies, Inc. 2000 Stock Plan	990,792	\$52.35	\$51 , 15

Cadabra Design Libraries Inc. Stock Option Plan	14,379	\$45.52	\$651 , 5
Cadabra Design Libraries Inc. U.S. Stock Option Plan	10,013	\$47.00	\$470 , 2
Preferred Share Purchase Rights (3)			
TOTAL:	1,072,751	\$152.78	\$52 , 92

- (1) This Registration Statement shall also cover any additional shares of Registrant's Common Stock which become issuable under each of the plans listed in the table above (the "Plans") by reason of any stock dividend, stock split, recapitalization or other similar transaction effected without the Registrant's receipt of consideration which results in an increase in the number of the Registrant's outstanding shares of Common Stock. The options outstanding under the Plans are being assumed by the Registrant pursuant to an Agreement and Plan of Merger among the Registrant, Neon Acquisition Corporation and Numerical Technologies, Inc., dated as of January 12, 2003 (the "Merger Agreement"). The number of shares and exercise prices have been adjusted to reflect the conversion of the options into options to purchase shares of the Registrant pursuant to the terms of the Merger Agreement.
- (2) Calculated solely for purposes of this offering under Rule 457(h) of the Securities Act of 1933, as amended (the "1933 Act"), on the basis of the exercise price of the outstanding options.
- (3) Preferred Share Purchase Rights (the "Rights") initially trade together with the Common Stock. The value attributable to the Rights, if any, is reflected in the market price of the Common Stock.

PART II

Information Required in the Registration Statement

Item 3. Incorporation of Documents by Reference

Synopsys, Inc. (the "Registrant") hereby incorporates by reference into this Registration Statement the following documents previously filed with the Securities and Exchange Commission (the "Commission"):

> (a) The Registrant's Annual Report on Form 10-K for the fiscal year ended October 31, 2002 filed with the Commission on January 29, 2003 (as amended by the Form 10-K/A filed with the Commission on January 31, 2003 and the Form 10-K/A filed with the Commission on February 28, 2003), pursuant to Section 13 of the Securities Exchange Act of 1934, as amended (the "1934 Act");

- (b) The Registrant's Current Report on Form 8-K filed with the Commission on November 19, 2002;
- (c) The Registrant's Registration Statement on Form 8-A, filed with Commission on January 24, 1992, pursuant to Section 12(g) of the 1934 Act, in which there is described the terms, rights and provisions applicable to the Registrant's Common Stock; and
- (d) The Registrant's Registration Statement on Form 8-A, filed with the Commission on October 31, 1997, pursuant to Section 12(g) of the 1934 Act, and as amended on Form 8-A/A on December 13, 1999 and April 10, 2000 in which there is described the terms, rights and provisions applicable to the Registrant's Preferred Share Purchase Rights.

All reports and definitive proxy or information statements filed pursuant to Section 13(a), 13(c), 14 or 15(d) of the 1934 Act after the date of this Registration Statement and prior to the filing of a post-effective amendment which indicates that all securities offered hereby have been sold or which de-registers all securities then remaining unsold shall be deemed to be incorporated by reference into this Registration Statement and to be a part hereof from the date of filing of such documents. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein or in any subsequently filed document which also is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

Item 4. Description of Securities

Not Applicable.

Item 5. Interests of Named Experts and Counsel

Not Applicable.

Item 6. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law permits a corporation to include in its charter documents, and in agreements between the corporation and its directors and officers, provisions expanding the scope of indemnification beyond that specifically provided by the current law.

Article X of the Registrant's Restated Certificate of Incorporation provides for the indemnification of directors to the fullest extent permissible under Delaware Law.

Article VII of the Registrant's Bylaws provides for the indemnification of officers, directors and third parties to the fullest extent permissible under Delaware Law, which provisions are deemed to be a contract between the Registrant and each director and officer who serves in such capacity while such bylaw is in effect.

The Registrant has entered into indemnification agreements with its directors and executive officers, in addition to the indemnification provided for in the Registrant's Bylaws, and intends to enter into indemnification agreements with

any new directors and executive officers in the future. The Registrant has also obtained liability insurance for the benefit of its directors and officers.

II-1

Item 7. Exemption from Registration Claimed

Not Applicable.

- Item 8. Exhibits
- Exhibit Number: Exhibit:
- 4.1 Instruments Defining the Rights of Stockholders.*
- 4.2 Fourth Amended and Restated Certificate of Incorporation (filed as Exhibit 3.1 to the Registrant's Annual Report on Form 10-K for the fiscal year ended October 31, 2002 (the "Annual Report") and incorporated herein by reference)
- 4.3 Restated By-laws of Synopsys, Inc. (filed as Exhibit 3.4 to the Annual Report) and incorporated herein by reference)
- 4.4 Numerical Technologies, Inc. 1997 Stock Plan (filed herewith)
- 4.5 Numerical Technologies, Inc. 2000 Stock Plan (filed herewith)
- 4.6 Cadabra Design Libraries Inc. Stock Option Plan (filed herewith)
- 4.7 Cadabra Design Libraries Inc. U.S. Stock Option Plan
- 5.1 Opinion of Counsel (filed herewith)

- 23.1 Consent of KPMG LLP, Independent Auditors (filed herewith)
- 23.2 Consent of Counsel (included in Exhibit 5.1)
- 24.1 Power of Attorney (included in page II-4)

Item 9. Undertakings

A. The undersigned Registrant hereby undertakes: (1) to file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement: (i) to include any prospectus required by Section 10(a)(3) of the 1933 Act, (ii) to reflect in the prospectus any facts or events arising after the effective date of this Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the

^{*} Reference is made to the Registrant's Registration Statements on Form 8-A, including the exhibits thereto, incorporated herein by reference pursuant to Items 3(c) and 3(d) of this Registration Statement.

aggregate, represent a fundamental change in the information set forth in this Registration Statement and (iii) to include any material information with respect to the plan of distribution not previously disclosed in this Registration Statement or any material change to such information in this Registration Statement; provided, however, that clauses (1)(i) and (1)(ii) shall not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the Registrant pursuant to Section 13 or Section 15(d) of the 1934 Act that are incorporated by reference into this Registration Statement; (2) that for the purpose of determining any liability under the 1933 Act each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof; and (3) to remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

II-2

B. The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the 1933 Act, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the 1934 Act that is incorporated by reference into this Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

C. Insofar as indemnification for liabilities arising under the 1933 Act may be permitted to directors, officers or controlling persons of the Registrant pursuant to the indemnification provisions summarized in Item 6 or otherwise, the Registrant has been advised that, in the opinion of the Commission, such indemnification is against public policy as expressed in the 1933 Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer, or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the 1933 Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8, and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Mountain View, State of California on this 6th day of March, 2003.

SYNOPSYS, INC.

By:

/s/ Aart J. de Geus Aart J. de Geus Chief Executive Officer

II-3

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Aart J. de Geus and Steven K. Shevick, and each of them, as such person's true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for such person and in such person's name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement, and to file same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as such person might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his or her substitutes, may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated:

Signature	Title	Date		
/s/ Aart J. de Geus Aart J. de Geus	Chief Executive Officer (Principal Executive Officer) and Chairman of the Board of Directors	March	6,	2003
/s/ Chi-Foon Chan Chi-Foon Chan	President, Chief Operating Officer and Director	March	6,	2003
/s/ Steven K. Shevick Steven K. Shevick	Chief Financial Officer (Principal Financial Officer)	March	6,	2003
/s/ Richard Rowley Richard Rowley	Corporate Controller (Principal Accounting Officer)	March	6,	2003
/s/ Andy D. Bryant Andy D. Bryant	Director	March	6,	2003
/s/ Deborah A. Coleman	Director	March	6,	2003

Deborah A. Coleman

/s/ Bruce R. Chizen Bruce R. Chizen	Director	March 6, 2003
	II-4	
/s/ A. Richard Newton A. Richard Newton	Director	March 6, 2003
/s/ Sasson Somekh Sasson Somekh	Director	March 6, 2003
/s/ Steven C. Walske Steven C. Walske	Director	March 6, 2003

II-5

EXHIBIT INDEX

Exhibit Number	Exhibit
4.1	Instruments Defining the Rights of Stockholders.*
4.2	Fourth Amended and Restated Certificate of Incorporation (filed as Exhibit 3.1 to the Registrant's Annual Report on Form 10-K for the fiscal year ended October 31, 2002 (the "Annual Report") and incorporated herein by reference)
4.3	Restated By-laws of Synopsys, Inc. (filed as Exhibit 3.4 to the Annual Report) and incorporated herein by reference)
4.4	Numerical Technologies, Inc. 1997 Stock Plan (filed herewith)
4.5	Numerical Technologies, Inc. 2000 Stock Plan (filed herewith)
4.6	Cadabra Design Libraries Inc. Stock Option Plan (filed herewith)
4.7	Cadabra Design Libraries Inc. U.S. Stock Option Plan (filed herewith)

- 5.1 Opinion of Counsel (filed herewith)
- 23.1 Consent of KPMG LLP, Independent Auditors (filed herewith)
- 23.2 Consent of Counsel in Exhibit 5.1 (included in Exhibit 5.1)
- 24.1 Power of Attorney (included in page II-4)

* Reference is made to the Registrant's Registration Statements on Form 8-A, including the exhibits thereto, incorporated herein by reference pursuant to Items 3(c) and 3(d) of this Registration Statement.

II-6

Exhibit 4.4

NUMERICAL TECHNOLOGIES, INC.

1997 STOCKPLAN

(as amended and restated)

1. Purposes of the Plan. The purposes of this Stock Plan are to attract and retain the best available personnel for positions of substantial responsibility, to provide additional incentive to Employees, Directors and Consultants and to promote the success of the Company's business. Options granted under the Plan may be Incentive Stock Options or Nonstatutory Stock Options, as determined by the Administrator at the time of grant. Stock Purchase Rights may also be granted under the Plan.

2. Definitions. As used herein, the following definitions shall apply:

(a) "Administrator" means the Board or any of its Committees as shall be administering the Plan in accordance with Section 4 hereof.

(b) "Applicable Laws" means the requirements relating to the administration of stock option plans under U.S. state corporate laws, U.S. federal and state securities laws, the Code, any stock exchange or quotation system on which the Common Stock is listed or quoted and the applicable laws of any other country or jurisdiction where Options or Stock Purchase Rights are granted under the Plan.

(c) "Board" means the Board of Directors of the Company.

(d) "Code" means the Internal Revenue Code of 1986, as amended.

(e) "Committee" means a committee of Directors appointed by the Board in accordance with Section 4 hereof.

(f) "Common Stock" means the Common Stock of the Company.

(g) "Company" means Numerical Technologies, Inc., a California corporation.

(h) "Consultant" means any person who is engaged by the Company or any Parent or Subsidiary to render consulting or advisory services to such entity.

(i) "Director" means a member of the Board of Directors of the Company.

(j) "Disability" means total and permanent disability as defined in Section

22(e)(3) of the Code.

1

(k) "Employee" means any person, including Officers and Directors, employed by the Company or any Parent or Subsidiary of the Company. A Service Provider shall not cease to be an Employee in the case of (i) any leave of absence approved by the Company or (ii) transfers between locations of the Company or between the Company, its Parent, any Subsidiary, or any successor. For purposes of Incentive Stock Options, no such leave may exceed ninety days, unless reemployment upon expiration of such leave is guaranteed by statute or contract. If reemployment upon expiration of a leave of absence approved by the Company is not so guaranteed, on the 181st day of such leave any Incentive Stock Option held by the Optionee shall cease to be treated as an Incentive Stock Option and shall be treated for tax purposes as a Nonstatutory Stock Option. Neither service as a Director nor payment of a director's fee by the Company shall be sufficient to constitute "employment" by the Company.

(1) "Exchange Act" means the Securities Exchange Act of 1934, as amended.

(m) "Fair Market Value" means, as of any date, the value of Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or a national market system, including without limitation the Nasdaq National Market or The Nasdaq SmallCap Market of The Nasdaq Stock Market, its Fair Market Value shall be the closing sales price for such stock (or the closing bid, if no sales were reported) as quoted on such exchange or system for the last market trading day prior to the time of determination, as reported in The Wall Street Journal or such other source as the Administrator deems reliable;

(ii) If the Common Stock is regularly quoted by a recognized securities dealer but selling prices are not reported, its Fair Market Value shall be the mean between the high bid and low asked prices for the Common Stock on the last market trading day prior to the day of determination; or

(iii) In the absence of an established market for the Common Stock, the Fair Market Value thereof shall be determined in good faith by the Administrator.

(n) "Incentive Stock Option" means an Option intended to qualify as an incentive stock option within the meaning of Section 422 of the Code.

(o) "Nonstatutorv Stock Option" means an Option not intended to qualify as an Incentive Stock Option.

(p) "Officer" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.

(q) "Option" means a stock option granted pursuant to the Plan.

(r) "Option Agreement" means a written or electronic agreement between the Company and an Optionee evidencing the terms and conditions of an individual Option grant. The Option Agreement is subject to the terms and conditions of the Plan.

(s) "Option Exchange Program" means a program whereby outstanding Options are exchanged for Options with a lower exercise price.

(t) "Optioned Stock" means the Common Stock subject to an Option or a Stock Purchase Right.

(u) "Optionee" means the holder of an outstanding Option or Stock Purchase Right granted under the Plan.

(v) "Parent" means a "parent corporation," whether now or hereafter existing, as defined in Section 424(e) of the Code.

(w) "Plan" means this 1997 Stock Plan.

(x) "Restricted Stock" means shares of Common Stock acquired pursuant to a grant of a Stock Purchase Right under Section 11 below.

(y) "Section 16(b)" means Section 16(b) of the Securities Exchange Act of 1934, as amended.

(z) "Service Provider" means an Employee, Director or Consultant.

(aa)"Share" means a share of the Common Stock, as adjusted in accordance with Section 12 below.

(bb)"Stock Purchase Right" means a right to purchase Common Stock pursuant to Section 11 below.

(cc)"Subsidiary" means a "subsidiary corporation," whether now or hereafter existing, as defined in Section 424(f) of the Code.

3. Stock Subject to the Plan. Subject to the provisions of Section 12 of the Plan, the maximum aggregate number of Shares which may be subject to option and sold under the Plan is 4,131,000 Shares. The Shares may be authorized but unissued, or reacquired Common Stock.

If an Option or Stock Purchase Right expires or becomes unexercisable without having been exercised in full, or is surrendered pursuant to an Option Exchange Program, the unpurchased Shares which were subject thereto shall become available for future grant or sale under the Plan (unless the Plan has terminated). However, Shares that have actually been issued under the Plan, upon exercise of either an Option or Stock Purchase Right, shall not be returned to the Plan and shall not become available for future distribution under the Plan, except that if Shares of Restricted Stock are repurchased by the Company at their original purchase price, such Shares shall become available for future grant under the Plan.

4. Administration of the Plan.

(a) Administrator. The Plan shall be administered by the Board or a Committee appointed by the Board, which Committee shall be constituted to comply with Applicable Laws.

3

(b) Powers of the Administrator. Subject to the provisions of the Plan and, in the case of a Committee, the specific duties delegated by the Board to such Committee, and subject to the approval of any relevant authorities, the Administrator shall have the authority in its discretion:

(i) to determine the Fair Market Value;

(ii) to select the Service Providers to whom Options and Stock Purchase Rights may from time to time be granted hereunder;

(iii) to determine the number of Shares to be covered by each such award granted hereunder;

(iv) to approve forms of agreement for use under the Plan;

(v) to determine the terms and conditions, of any Option or Stock Purchase Right granted hereunder. Such terms and conditions include, but are not limited to, the exercise price, the time or times when Options or Stock Purchase Rights may be exercised (which may be based on performance criteria), any vesting acceleration or waiver of forfeiture restrictions, and any restriction or limitation regarding any Option or Stock Purchase Right or the Common Stock relating thereto, based in each case on such factors as the Administrator, in its sole discretion, shall determine;

(vi) to determine whether and under what circumstances an Option may be settled in cash under subsection 9(e) instead of Common Stock;

(vii) to reduce the exercise price of any Option to the then current Fair Market Value if the Fair Market Value of the Common Stock covered by such Option has declined since the date the Option was granted;

(viii)to initiate an Option Exchange Program;

(ix) to prescribe, amend and rescind rules and regulations relating to the Plan, including rules and regulations relating to sub-plans established for the purpose of qualifying for preferred tax treatment under foreign tax laws;

(x) to allow Optionees to satisfy withholding tax obligations by electing to have the Company withhold from the Shares to be issued upon exercise of an Option or Stock Purchase Right that number of Shares having a Fair Market Value equal to the amount required to be withheld. The Fair Market Value of the Shares to be withheld shall be determined on the date that the amount of tax to be withheld is to be determined. All elections by Optionees to have Shares withheld for this purpose shall be made in such form and under such conditions as the Administrator may deem necessary or advisable; and

 $({\rm xi})$ to construe and interpret the terms of the Plan and awards granted pursuant to the Plan.

4

(c) Effect of Administrator's Decision. All decisions, determinations and interpretations of the Administrator shall be final and binding on all Optionees.

5. Eligibility.

(a) Nonstatutory Stock Options and Stock Purchase Rights may be granted to Service Providers. Incentive Stock Options may be granted only to Employees.

(b) Each Option shall be designated in the Option Agreement as either an Incentive Stock Option or a Nonstatutory Stock Option. However, notwithstanding such designation, to the extent that the aggregate Fair Market Value of the Shares with respect to which Incentive Stock Options are exercisable for the first time by the Optionee during any calendar year (under all plans of the Company and any Parent or Subsidiary) exceeds \$100,000, such Options shall be treated as Nonstatutory Stock Options. For purposes of this Section 5(b),

Incentive Stock Options shall be taken into account in the order in which they were granted. The Fair Market Value of the Shares shall be determined as of the time the Option with respect to such Shares is granted.

(c) Neither the Plan nor any Option or Stock Purchase Right shall confer upon any Optionee any right with respect to continuing the Optionee's relationship as a Service Provider with the Company, nor shall it interfere in any way with his or her right or the Company's right to terminate such relationship at any time, with or without cause.

6. Term of Plan. The Plan shall become effective upon its adoption by the Board. It shall continue in effect for a term of ten (10) years unless sooner terminated under Section 14 of the Plan.

7. Term of Option. The term of each Option shall be stated in the Option Agreement; provided, however, that the term shall be no more than ten (10) years from the date of grant thereof. In the case of an Incentive Stock Option granted to an Optionee who, at the time the Option is granted, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the term of the Option shall be five (5) years from the date of grant or such shorter term as may be provided in the Option Agreement.

8. Option Exercise Price and Consideration.

(a) The per share exercise price for the Shares to be issued upon exercise of an Option shall be such price as is determined by the Administrator, but shall be subject to the following:

(i) In the case of an Incentive Stock Option

(A) granted to an Employee who, at the time of grant of such Option, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the exercise price shall be no less than 110% of the Fair Market Value per Share on the date of grant.

5

(B) granted to any other Employee, the per Share exercise price shall be no less than 100% of the Fair Market Value per Share on the date of grant.

(ii) In the case of a Nonstatutory Stock Option

(A) granted to a Service Provider who, at the time of grant of such Option, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the exercise price shall be no less than 110% of the Fair Market Value per Share on the date of grant.

(B) granted to any other Service Provider, the per Share exercise price shall be no less than 85% of the Fair Market Value per Share on the date of grant.

(iii) Notwithstanding the foregoing, Options may be granted with a per Share exercise price other than as required above pursuant to a merger or other corporate transaction.

(b) The consideration to be paid for the Shares to be issued upon exercise of an Option, including the method of payment, shall be determined by the

Administrator (and, in the case of an Incentive Stock Option, shall be determined at the time of grant). Such consideration may consist of (1) cash, (2) check, (3) promissory note, (4) other Shares which (x) in the case of Shares acquired upon exercise of an Option, have been owned by the Optionee for more than six months on the date of surrender, and (y) have a Fair Market Value on the date of surrender equal to the aggregate exercise price of the Shares as to which such Option shall be exercised, (5) consideration received by the Company under a cashless exercise program implemented by the Company in connection with the Plan, or (6) any combination of the foregoing methods of payment. In making its determination as to the type of consideration to accept, the Administrator shall consider if acceptance of such consideration may be reasonably expected to benefit the Company.

9. Exercise of Option.

(a) Procedure for Exercise; Rights as a Shareholder. Any Option granted hereunder shall be exercisable according to the terms hereof at such times and under such conditions as determined by the Administrator and set forth in the Option Agreement. Except in the case of Options granted to Officers, Directors and Consultants, Options shall become exercisable at a rate of no less than 20% per year over five (5) years from the date the Options are granted. Unless the Administrator provides otherwise, vesting of Options granted hereunder shall be tolled during any unpaid leave of absence. An Option may not be exercised for a fraction of a Share.

An Option shall be deemed exercised when the Company receives:(i) written or electronic notice of exercise (in accordance with the Option Agreement) from the person entitled to exercise the Option, and (ii) full payment for the Shares with respect to which the Option is exercised. Full payment may consist of any consideration and method of payment authorized by the

6

Administrator and permitted by the Option Agreement and the Plan. Shares issued upon exercise of an Option shall be issued in the name of the Optionee or, if requested by the Optionee, in the name of the Optionee and his or her spouse. Until the Shares are issued (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a shareholder shall exist with respect to the Shares, notwithstanding the exercise of the Option. The Company shall issue (or cause to be issued) such Shares promptly after the Option is exercised. No adjustment will be made for a dividend or other right for which the record date is prior to the date the Shares are issued, except as provided in Section 12 of the Plan.

Exercise of an Option in any manner shall result in a decrease in the number of Shares thereafter available, both for purposes of the Plan and for sale under the Option, by the number of Shares as to which the Option is exercised.

(b) Termination of Relationship as a Service Provider. If an Optionee ceases to be a Service Provider, such Optionee may exercise his or her Option within such period of time as is specified in the Option Agreement (of at least thirty (30) days) to the extent that the Option is vested on the date of termination (but in no event later than the expiration of the term of the Option as set forth in the Option Agreement). In the absence of a specified time in the Option Agreement, the Option shall remain exercisable for three (3) months following the Optionee's termination. If, on the date of termination, the Optionee is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option shall revert to the Plan. If, after termination, the Optionee does not exercise his or her Option within the time specified by the Administrator, the Option shall terminate, and the Shares covered by such Option

shall revert to the Plan.

(c) Disability of Option. If an Optionee ceases to be a Service Provider as a result of the Optionee's Disability, the Optionee may exercise his or her Option within such period of time as is specified in the Option Agreement (of at least six (6) months) to the extent the Option is vested on the date of termination (but in no event later than the expiration of the term of such Option as set forth in the Option Agreement). In the absence of a specified time in the Option Agreement, the Option shall remain exercisable for twelve (12) months following the Optionee's termination. If, on the date of termination, the Optionee is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option shall revert to the Plan. If, after termination, the Optionee does not exercise his or her Option within the time specified herein, the Option shall terminate, and the Shares covered by such Option shall revert to the Plan.

(d) Death of Optionee. If an Optionee dies while a Service Provider, the Option may be exercised within such period of time as is specified in the Option Agreement (of at least six (6) months) to the extent that the Option is vested on the date of death (but in no event later than the expiration of the term of such Option as set forth in the Option Agreement) by the Optionee's estate or by a person who acquires the right to exercise the Option by bequest or inheritance. In the absence of a specified time in the Option Agreement, the Option shall remain exercisable for twelve (12) months following the Optionee's termination. If, at the time of death, the Optionee is not vested as to the entire Option, the Shares covered by the unvested portion of the Option shall immediately revert to the Plan. If the Option is not so exercised within the time specified herein, the Option shall terminate, and the Shares covered by such Option shall revert to the Plan.

7

(e) Buyout Provisions. The Administrator may at any time offer to buy out for a payment in cash or Shares, an Option previously granted, based on such terms and conditions as the Administrator shall establish and communicate to the Optionee at the time that such offer is made.

10. Non-Transferability of Options and Stock Purchase Rights. The Options and Stock Purchase Rights may not be sold, pledged, assigned, hypothecated, transferred, or disposed of in any manner other than by will or by the laws of descent or distribution and may be exercised during the lifetime of the Optionee, only by the Optionee.

11. Stock Purchase Rights.

(a) Rights to Purchase. Stock Purchase Rights may be issued either alone, in addition to, or in tandem with other awards granted under the Plan and/or cash awards made outside of the Plan. After the Administrator determines that it will offer Stock Purchase Rights under the Plan, it shall advise the offeree in writing or electronically of the terms, conditions and restrictions related to the offer, including the number of Shares that such person shall be entitled to purchase, the price to be paid, and the time within which such person must accept such offer. The terms of the offer shall comply in all respects with Section 260.140.42 of Title 10 of the California Code of Regulations. The offer shall be accepted by execution of a Restricted Stock purchase agreement in the form determined by the Administrator.

(b) Repurchase Option. Unless the Administrator determines otherwise, the Restricted Stock purchase agreement shall grant the Company a repurchase option exercisable upon the voluntary or involuntary termination of the purchaser's service with the Company for any reason (including death or disability). The

purchase price for Shares repurchased pursuant to the Restricted Stock purchase agreement shall be the original price paid by the purchaser and may be paid by cancellation of any indebtedness of the purchaser to the Company. The repurchase option shall lapse at such rate as the Administrator may determine. Except with respect to Shares purchased by Officers, Directors and Consultants, the repurchase option shall in no case lapse at a rate of less than 20% per year over five (5) years from the date of purchase.

(c) Other Provisions. The Restricted Stock purchase agreement shall contain such other terms, provisions and conditions not inconsistent with the Plan as may be determined by the Administrator in its sole discretion.

(d) Rights as a Shareholder. Once the Stock Purchase Right is exercised, the purchaser shall have rights equivalent to those of a shareholder and shall be a shareholder when his or her purchase is entered upon the records of the duly authorized transfer agent of the Company. No adjustment shall be made for a dividend or other right for which the record date is prior to the date the Stock Purchase Right is exercised, except as provided in Section 12 of the Plan.

12. Adjustments Upon Changes in Capitalization, Merger or Asset Sale.

(a) Changes in Capitalization. Subject to any required action by the shareholders of the Company, the number of shares of Common Stock covered by each outstanding Option or Stock Purchase Right, and the number of shares of Common Stock which have been authorized for issuance under the Plan but as to which no Options or Stock Purchase Rights have yet been granted or which have

8

been returned to the Plan upon cancellation or expiration of an Option or Stock Purchase Right, as well as the price per share of Common Stock covered by each such outstanding Option or Stock Purchase Right, shall be proportionately adjusted for any increase or decrease in the number of issued shares of Common Stock resulting from a stock split, reverse stock split, stock dividend, combination or reclassification of the Common Stock, or any other increase or decrease in the number of issued shares of Common Stock effected without receipt of consideration by the Company. The conversion of any convertible securities of the Company shall not be deemed to have been "effected without receipt of consideration." Such adjustment shall be made by the Board, whose determination in that respect shall be final, binding and conclusive. Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock subject to an Option or Stock Purchase Right.

(b) Dissolution or Liquidation. In the event of the proposed dissolution or liquidation of the Company, the Administrator shall notify each Optionee as soon as practicable prior to the effective date of such proposed transaction. The Administrator in its discretion may provide for an Optionee to have the right to exercise his or her Option or Stock Purchase Right until fifteen (15) days prior to such transaction as to all of the Optioned Stock covered thereby, including Shares as to which the Option or Stock Purchase Right would not otherwise be exercisable. In addition, the Administrator may provide that any Company repurchase option applicable to any Shares purchased upon exercise of an Option or Stock Purchase Right shall lapse as to all such Shares, provided the proposed dissolution or liquidation takes place at the time and in the manner contemplated. To the extent it has not been previously exercised, an Option or Stock Purchase Right will terminate immediately prior to the consummation of such proposed action.

(c) Merger or Asset Sale. In the event of a merger of the Company with or

into another corporation, or the sale of substantially all of the assets of the Company, each outstanding Option and Stock Purchase Right shall be assumed or an equivalent option or right substituted by the successor corporation or a Parent or Subsidiary of the successor corporation. In the event that the successor corporation refuses to assume or substitute for the Option or Stock Purchase Right, the Option or Stock Purchase Right shall terminate as of the date of the closing of the merger or asset sale. For the purposes of this paragraph, the Option or Stock Purchase Right shall be considered assumed if, following the merger or sale of assets, the option or right confers the right to purchase or receive, for each Share of Optioned Stock subject to the Option or Stock Purchase Right immediately prior to the merger or sale of assets, the consideration (whether stock, cash, or other securities or property) received in the merger or sale of assets by holders of Common Stock for each Share held on the effective date of the transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares); provided, however, that if such consideration received in the merger or sale of assets is not solely common stock of the successor corporation or its Parent, the Administrator may, with the consent of the successor corporation, provide for the consideration to be received upon the exercise of the Option or Stock Purchase Right, for each Share of Optioned Stock subject to the Option or Stock Purchase Right, to be solely common stock of the

9

successor corporation or its Parent equal in fair market value to the per share consideration received by holders of Common Stock in the merger or sale of assets.

13. Time of Granting Options and Stock Purchase Rights. The date of grant of an Option or Stock Purchase Right shall, for all purposes, be the date on which the Administrator makes the determination granting such Option or Stock Purchase Right, or such other date as is determined by the Administrator. Notice of the determination shall be given to each Employee to whom an Option or Stock Purchase Right is so granted within a reasonable time after the date of such grant.

14. Amendment and Termination of the Plan.

(a) Amendment and Termination. The Board may at any time amend, alter, suspend or terminate the Plan.

(b) Shareholder Approval. The Board shall obtain shareholder approval of any Plan amendment to the extent necessary and desirable to comply with Applicable Laws.

(c) Effect of Amendment or Termination. No amendment, alteration, suspension or termination of the Plan shall impair the rights of any Optionee, unless mutually agreed otherwise between the Optionee and the Administrator, which agreement must be in writing and signed by the Optionee and the Company. Termination of the Plan shall not affect the Administrator's ability to exercise the powers granted to it hereunder with respect to Options granted under the Plan prior to the date of such termination.

15. Conditions Upon Issuance of Shares.

(a) Legal Compliance. Shares shall not be issued pursuant to the exercise of an Option unless the exercise of such Option and the issuance and delivery of such Shares shall comply with Applicable Laws and shall be further subject to the approval of counsel for the Company with respect to such compliance.

(b) Investment Representations. As a condition to the exercise of an Option,

the Administrator may require the person exercising such Option to represent and warrant at the time of any such exercise that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required.

16. Inability to Obtain Authority. The inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is deemed by the Company's counsel to be necessary to the lawful issuance and sale of any Shares hereunder, shall relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority shall not have been obtained.

17. Reservation of Shares. The Company, during the term of this Plan, shall at all times reserve and keep available such number of Shares as shall be sufficient to satisfy the requirements of the Plan.

10

18. Shareholder Approval. The Plan shall be subject to approval by the shareholders of the Company within twelve (12) months after the date the Plan is adopted. Such shareholder approval shall be obtained in the degree and manner required under Applicable Laws.

19. Information to Optionees and Purchasers. The Company shall provide to each Optionee and to each individual who acquires Shares pursuant to the Plan, not less frequently than annually during the period such Optionee or purchaser has one or more Options or Stock Purchase Rights outstanding, and, in the case of an individual who acquires Shares pursuant to the Plan, during the period such individual owns such Shares, copies of annual financial statements. The Company shall not be required to provide such statements to key employees whose duties in connection with the Company assure their access to equivalent information.

11

Exhibit 4.5

NUMERICAL TECHNOLOGIES, INC.

2000 STOCK PLAN (Rev 1.00)

1. Purposes of the Plan. The purposes of this 2000 Stock Plan are:

(a) to attract and retain the best available personnel for positions of substantial responsibility,

(b) to provide additional incentive to Employees, $% \left({{{\mathbf{D}}_{{\mathbf{n}}}}_{{\mathbf{n}}}} \right)$ Directors and Consultants, and

(c) to promote the success of the Company's business.

Options granted under the Plan may be Incentive Stock Options or Nonstatutory Stock Options, as determined by the Administrator at the time of grant. Stock Purchase Rights may also be granted under the Plan.

2. Definitions. As used herein, the following definitions shall apply:

(a) "Administrator" means the Board or any of its Committees as shall be administering the Plan, in accordance with Section 4 of the Plan.

(b) "Applicable Laws" means the requirements relating to the administration of stock option plans under U. S. state corporate laws, U.S. federal and state securities laws, the Code, any stock exchange or quotation system on which the Common Stock is listed or quoted and the applicable laws of any foreign country or jurisdiction where Options or Stock Purchase Rights are, or will be, granted under the Plan.

(c) "Board" means the Board of Directors of the Company.

(d) "Cause" means (i) any act of personal dishonesty taken by the Optionee in connection with his responsibilities as an Employee which is intended to result in personal enrichment of the Optionee, (ii) the Optionee's conviction of a felony, (iii) any act by the Optionee that constitutes misconduct, and (iv) continued violations by the Optionee of the Optionee's obligations to the Company.

(e) "Change of Control" means the occurrence of any of the following events:

(i) Any "person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "beneficial owner" (as defined in Rule 13d-3 of the Exchange Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the total voting power represented by the Company's then outstanding voting securities;

or

(ii) The consummation of the sale or disposition by the Company of all or substantially all of the Company's assets; or

1

(iii) The consummation of a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or its parent) at least seventy percent (70%) of the total voting power represented by the voting securities of the Company or such surviving entity or its parent outstanding immediately after such merger or consolidation.

(f) "Code" means the Internal Revenue Code of 1986, as amended.

(g) "Committee" means a committee of Directors appointed by the Board in accordance with Section 4 of the Plan.

(h) "Common Stock" means the common stock of the Company.

(i) "Company" means Numerical Technologies, Inc., a California corporation.

(j) "Consultant" means any person, including an advisor, engaged by the Company or a Parent or Subsidiary to render services to such entity.

(k) "Director" means a member of the Board.

(1) "Disability" means total and permanent disability as defined in Section 22(e)(3) of the Code.

(m) "Employee" means any person, including Officers and Directors, employed by the Company or any Parent or Subsidiary of the Company. A

Service Provider shall not cease to be an Employee in the case of (i) any leave of absence approved by the Company or (ii) transfers between locations of the Company or between the Company, its Parent, any Subsidiary, or any successor. For purposes of Incentive Stock Options, no such leave may exceed ninety days, unless reemployment upon expiration of such leave is guaranteed by statute or contract. If reemployment upon expiration of a leave of absence approved by the Company is not so guaranteed, on the 181st day of such leave any Incentive Stock Option held by the Optionee shall cease to be treated as an Incentive Stock Option and shall be treated for tax purposes as a Nonstatutory Stock Option. Neither service as a Director nor payment of a director's fee by the Company shall be sufficient to constitute "employment" by the Company.

(n) "Exchange Act" means the Securities Exchange Act of 1934, as amended.

(o) "Fair Market Value" means, as of any, date, the value of Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or a national market system, including without limitation the Nasdaq National Market or The Nasdaq SmallCap Market of The Nasdaq Stock Market, its Fair Market Value shall be the closing sales price for such stock (or the closing bid, if no sales were reported) as quoted on such exchange or system for the last market trading day prior to the time of determination, as reported in The Wall Street Journal or such other source as the Administrator deems reliable;

2

(ii) If the Common Stock is regularly quoted by a recognized securities dealer but selling prices are not reported, the Fair Market Value of a Share of Common Stock shall be the mean between the high bid and low asked prices for the Common Stock on the last market trading day prior to the day of determination, as reported in The Wall Street Journal or such other source as the Administrator deems reliable; or

(iii) In the absence of an established market for the Common Stock, the Fair Market Value shall be determined in good faith by the Administrator.

(p) "Incentive Stock Option" means an Option intended to qualify as an incentive stock option within the meaning of Section 422 of the Code and the regulations promulgated thereunder.

(q) "Inside Director" means a Director who is an Employee.

(r) "IPO Effective Date" means the date upon which the Securities and Exchange Commission declares the initial public offering of the Company's Common Stock as effective.

(s) "Nonstatutory Stock Option" means an Option not intended to qualify as an Incentive Stock Option.

(t) "Notice of Grant" means a written or electronic notice evidencing certain times and conditions of an individual Option or Stock Purchase Right grant. The Notice of Grant is part of the Option Agreement.

(u) "Officer" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act arid the rules and regulations promulgated thereunder.

(v) "Option" means a stock option granted pursuant to the Plan.

(w) "Option Agreement" means an agreement between the Company and an Optionee evidencing the terms and conditions of an individual Option grant. The Option Agreement is subject to the terms and conditions of the Plan.

(x) "Option Exchange Program" means a program whereby outstanding Options are surrendered in exchange for Options with a lower exercise price.

(y) "Optioned Stock" means the Common Stock subject to an Option or Stock Purchase Right.

(z) "Optionee" means the holder of an outstanding Option or Stock Purchase Right granted under the Plan.

3

(aa) "Outside Director" means a Director who is not an Employee.

(bb) "Plan" means this 2000 Stock Option Plan, as amended and restated.

(cc) "Restricted Stock" means shares of Common Stock acquired pursuant to a grant of Stock Purchase Rights under Section 11 of the Plan.

(dd) "Restricted Stock Purchase Agreement" means a written agreement between the Company and the Optionee evidencing the terms and restrictions applying to stock purchased under a Stock Purchase Right. The Restricted Stock Purchase Agreement is subject to the terms and conditions of the Plan and the Notice of Grant.

(ee) "Rule 16b-3" means Rule 16b-3 of the Exchange Act or any successor to Rule 16b-3, as in effect when discretion is being exercised with respect to the Plan.

(ff) "Section 16(b)" means Section 16(b) of the Exchange Act.

(gg) "Service Provider" means an Employee, Director or Consultant.

(hh) "Share" means a share of the Common Stock, as adjusted in accordance with Section 14 of the Plan.

(ii) "Stock Purchase Right" means the right to purchase Common Stock pursuant to Section 11 of the Plan, as evidenced by a Notice of Grant.

(jj) "Subsidiary" means a "subsidiary corporation," whether now or hereafter existing, as defined in Section 424(f) of the Code.

3. Stock Subject to the Plan. Subject to the provisions of Section 14 of the Plan, the maximum aggregate number of Shares which may be optioned and sold under the Plan is 2,000,000 Shares, plus the Shares available for future issuance under the Numerical Technologies, Inc. 1997 Stock Plan (the "1997 Stock Plan") on the date the Securities and Exchange Commission declares the Company's registration statement effective and any Shares thereafter returned to the 1997 Stock Plan. The number of Shares reserved for issuance under the Plan shall increase annually on the first day of the Company's fiscal year beginning in 2001 by an amount of Shares equal to the lesser of (i) 2,000,000 Shares, (ii) 5% of the outstanding Shares on such date or (iii) an amount determined by the Board. The Shares may be authorized, but unissued, or reacquired Common Stock.

If an Option or Stock Purchase Right expires or becomes unexercisable without having been exercised in full, or is surrendered pursuant to an Option Exchange Program, the unpurchased Shares which were subject thereto shall become available for future grant or sale under the Plan (unless the Plan has

terminated); provided, however, that Shares that have actually been issued under the Plan, whether upon exercise of an Option or Right, shall not be returned to the Plan and shall not become available for future distribution under the Plan, except that if Shares of Restricted Stock are repurchased by the Company at their original purchase price, such Shares shall become available for future grant under the Plan.

4

4. Administration of the Plan.

(a) Procedure.

(i) Multiple Administrative Bodies. The Plan may be administered by different Committees with respect to different groups of Service Providers.

(ii) Section 162m. To the extent that the Administrator determines it to be desirable to qualify Options granted hereunder as "performance-based compensation" within the meaning of Section 162(m) of the Code, the Plan shall be administered by a Committee of two or more "outside directors" within the meaning of Section 162(m) of the Code.

(iii) Rule 16b-3. To the extent desirable to qualify transactions hereunder as exempt under Rule 16b-3, the transactions contemplated hereunder shall be structured to satisfy the requirements for exemption under Rule 16b-3.

(iv) Other Administration. Other than as provided above, the Plan shall be administered by (A)the Board or (B) a Committee, which committee shall be constituted to satisfy Applicable Laws.

(b) Powers of the Administrator. Subject to the provisions of the Plan, and in the case of a Committee, subject to the specific duties delegated by the Board to such Committee, the Administrator shall have the authority, in its discretion:

(i) to determine the Fair Market Value;

(ii) to select the Service Providers to whom Options and StockPurchase Rights may be granted hereunder;

(iii) to determine the number of shares of Common Stock to be covered by each Option and Stock Purchase Right granted hereunder;

(iv) to approve forms of agreement for use under the Plan;

(v) to determine the terms and conditions, not inconsistent with the terms of the Plan, of any Option or Stock Purchase Right granted hereunder. Such terms and conditions include, but are not limited to, the exercise price, the time or times when Options or Stock Purchase Rights may be exercised (which may be based on performance criteria), any vesting acceleration or waiver of forfeiture restrictions, and any restriction or limitation regarding any Option or Stock Purchase Right or the shares of Common Stock relating thereto, based in each case on such factors as the Administrator, in its sole discretion, shall determine;

(vi) to reduce the exercise price of any Option or Stock Purchase Right to the then current Fair Market Value if the Fair Market Value of the Common Stock covered by such Option or Stock Purchase Right shall have declined since the date the Option or Stock Purchase Right was granted; 5

(vii) to institute an Option Exchange Program;

(viii)to construe and interpret the terms of the Plan and awards granted pursuant to the Plan;

(ix) to prescribe, amend and rescind rules and regulations relating to the Plan, including rules and regulations relating to sub-plans established for the purpose of qualifying for preferred tax treatment under foreign tax laws;

 (x) to modify or amend each Option or Stock Purchase Right (subject to Section 16(c) of the Plan), including the discretionary authority to extend the post-termination exercisability period of Options longer than is otherwise provided for in the Plan;

(xi) to allow Optionees to satisfy withholding tax obligations by electing to have the Company withhold from the Shares to be issued upon exercise of an Option or Stock Purchase Right that number of Shares having a Fair Market Value equal to the amount required to be withheld. The Fair Market Value of the Shares to be withheld shall be determined on the date that the amount of tax to be withheld is to be determined. All elections by an Optionee to have Shares withheld for this purpose shall be made in such form and under such conditions as the Administrator may deem necessary or advisable;

(xii) to authorize any person to execute on behalf of the Company any instrument required to effect the grant of an Option or Stock Purchase Right previously granted by the Administrator;

(xiii)to make all other determinations deemed necessary or advisable for administering the Plan.

(c) Effect of Administrator's Decision. The Administrator's decisions, determinations and interpretations shall be final and binding on all Optionees and any other holders of Options or Stock Purchase Rights.

5. Eligibility. Nonstatutory Stock Options and Stock Purchase Rights may be granted to Service Providers. Incentive Stock Options may be granted only to Employees.

6. Limitations.

(a) Each Option shall be designated in the Option Agreement as either an Incentive Stock Option or a Nonstatutory Stock Option. However, notwithstanding such designation, to the extent that the aggregate Fair Market Value of the Shares with respect to which Incentive Stock Options are exercisable for the first time by the Optionee during any calendar year (under all plans of the Company and any Parent or Subsidiary) exceeds \$100,000, such

6

Options shall be treated as Nonstatutory Stock Options. For purposes of this Section 6(a), Incentive Stock Options shall be taken into account in the order in which they were granted. The Fair Market Value of the Shares shall be determined as of the time the Option with respect to such Shares is granted.

(b) Neither the Plan nor any Option or Stock Purchase Right shall confer upon an Optionee any right with respect to continuing the Optionee's relationship as a Service Provider with the Company, nor shall they interfere in

any way with the Optionee's right or the Company's right to terminate such relationship at any time, with or without Cause.

(c) The following limitations shall apply to grants of Options:

(i) No Service Provider shall be granted, in any fiscal year of the Company, Options to purchase more than 1,000,000 Shares.

(ii) In connection with his or her initial service, a Service
 Provider may be granted Options to purchase up to an additional 2,000,000
 Shares, which shall not count against the limit, set forth in subsection (i) above.

(iii) The foregoing limitations shall be adjusted proportionately in connection with any change in the Company's capitalization as described in Section 14.

(iv) If an Option is cancelled in the same fiscal year of the Company in which it was granted (other than in connection with a transaction described in Section 14), the cancelled Option will be counted against the limits set forth in subsections (i) and (ii) above. For this purpose, if the exercise price of an Option is reduced, the transaction will be treated as a cancellation of the Option and the grant of a new Option.

7. Term of Plan. Subject to Section 20 of the Plan, the Plan shall become effective upon its adoption by the Board. It shall continue in effect for a term of ten (10) years unless terminated earlier under Section 16 of the Plan.

8. Term of Option. The term of each Option shall be stated in the Option Agreement. In the case of an Incentive Stock Option, the term shall be ten (10) years from the date of grant or such shorter term as may be provided in the Option Agreement. Moreover, in the case of an Incentive Stock Option granted to an Optionee who, at the time the Incentive Stock Option is granted, owns stock representing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Parent or Subsidiary, the term of the Incentive Stock Option shall be five (5) years from the date of grant or such shorter term as may be provided in the Option Agreement.

9. Option Exercise Price and Consideration.

(a) Exercise Price. The per share exercise price for the Shares to be issued pursuant to exercise of an Option shall be determined by the Administrator, subject to the following:

7

(i) In the case of an Incentive Stock Option

(A) granted to an Employee who, at the time the Incentive Stock Option is granted, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the per Share exercise price shall be no less than 110% of the Fair Market Value per Share on the date of grant.

(B) granted to any Employee other than an Employee described in paragraph (A) immediately above, the per Share exercise price shall be no less than 100% of the Fair Market Value per Share on the date of grant.

(ii) In the case of a Nonstatutory Stock Option, the per Share exercise price shall be determined by the Administrator. In the case of a Nonstatutory Stock Option intended to qualify as "performance-based"

compensation" within the meaning of Section $162\,(m)$ of the Code, the per Share exercise price shall be no less than 100% of the Fair Market Value per Share on the date of grant.

(iii) Notwithstanding the foregoing, Options may be granted with a per Share exercise price of less than 100% of the Fair Market Value per Share on the date of grant pursuant to a merger or other corporate transaction.

(b) Waiting Period and Exercise Dates. At the time an Option is granted, the Administrator shall fix the period within which the Option may be exercised and shall determine any conditions that must be satisfied before the Option may be exercised.

(c) Form of Consideration. The Administrator shall determine the acceptable form of consideration for exercising an Option, including the method of payment. In the case of an Incentive Stock Option, the Administrator shall determine the acceptable form of consideration at the time of grant. Such consideration may consist entirely of:

- (i) cash;
- (ii) check;
- (iii) promissory note;

(iv) other Shares which (A) in the case of Shares acquired upon exercise of an option, have been owned by the Optionee for more than six months on the date of surrender, and (B) have a Fair Market Value on the date of surrender equal to the aggregate exercise price of the Shares as to which said Option shall be exercised;

(v) consideration received by the Company under a cashless exercise program implemented by the Company in connection with the Plan;

8

(vi) a reduction in the amount of any Company liability to theOptionee, including any liability attributable to the Optionee's participationin any Company-sponsored deferred compensation program or arrangement;

(vii) any combination of the foregoing methods of payment; or

 $(\mbox{viii})\,\mbox{such other consideration}$ and method of payment for the issuance of Shares to the extent permitted by Applicable Laws.

10. Exercise of Option.

(a) Procedure for Exercise: Rights as a Shareholder. Any Option granted hereunder shall be exercisable according to the terms of the Plan and at such times and under such conditions as determined by the Administrator and set forth in the Option Agreement. Unless the Administrator provides otherwise, vesting of Options granted hereunder shall be tolled during any unpaid leave of absence. An Option may not be exercised for a fraction of a Share.

An Option shall be deemed exercised when the Company receives: (i) written or electronic notice of exercise (in accordance with the Option Agreement) from the person entitled to exercise the Option, and (ii) full payment for the Shares with respect to which the Option is exercised. Full payment may consist of any consideration and method of payment authorized by the Administrator and permitted by the Option Agreement and the Plan. Shares issued upon exercise of an Option shall be issued in the name of the Optionee or, if

requested by the Optionee, in the name of the Optionee and his or her spouse. Until the Shares are issued (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a shareholder shall exist with respect to the Optioned Stock, notwithstanding the exercise of the Option. The Company shall issue (or cause to be issued) such Shares promptly after the Option is exercised. No adjustment will be made for a dividend or other right for which the record date is prior to the date the Shares are issued, except as provided in Section 14 of the Plan.

Exercising an Option in any manner shall decrease the number of Shares thereafter available, both for purposes of the Plan and for sale under the Option, by the number of Shares as to which the Option is exercised.

(b) Termination of Relationship as a Service Provider. Subject to Section 14, if an Optionee ceases to be a Service Provider (but not in the event of an Optionee's change of status from Employee to Consultant (in which case an Employee's Incentive Stock Option shall automatically convert to a Nonstatutory Stock Option on the ninety-first (91st) day following such change of status) or from Consultant to Employee), such Optionee may, but only within such period of time as is specified in the Option Agreement (but in no event later than the expiration date of the term of such Option as set forth in the Option Agreement), exercise his or her Option to the extent that Optionee was entitled to exercise it at the date of such termination. In the absence of a specified time in the Option Agreement, the Option shall remain exercisable for three (3)

9

months following the Optionee's termination. If, on the date of termination, the Optionee is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option shall revert to the Plan. If, after termination, the Optionee does not exercise his or her Option within the time specified by the Administrator, the Option shall terminate, and the Shares covered by such Option shall revert to the Plan.

(c) Disability of Optionee. If an Optionee ceases to be a Service Provider as a result of the Optionee's Disability, the Optionee may, but only within twelve (12) months from the date of such termination (and in no event later than the expiration date of the term of such Option as set forth in the Option Agreement), exercise his or her Option to the extent that the Option is vested on the date of termination. If, on the date of termination, the Optionee is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option shall revert to the Plan. If, after termination, the Optionee does not exercise his or her Option within the time specified herein, the Option shall terminate, and the Shares covered by such Option shall revert to the Plan.

(d) Death of Optionee. If an Optionee dies while a Service Provider, the Option may be exercised at any time within twelve (12) months following the date of death (but in no event later than the expiration of the term of such Option as set forth in the Notice of Grant), by the Optionee's estate or by a person who acquires the right to exercise the Option by bequest or inheritance, but only to the extent that the Option is vested on the date of death. If, at the time of death, the Optionee is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option shall immediately revert to the Plan. The Option may be exercised by the executor or administrator of the Optionee's estate or, if none, by the person(s) entitled to exercise the Option under the Optionee's will or the laws of descent or distribution. If the Option is not so exercised within the time specified herein, the Option shall terminate, and the Shares covered by such Option shall revert to the Plan.

(e) Buyout Provisions. The Administrator may at any time offer to buy out for a payment in cash or Shares an Option previously granted based on such terms and conditions as the Administrator shall establish and communicate to the Optionee at the time that such offer is made.

11. Stock Purchase Rights.

(a) Rights to Purchase. Stock Purchase Rights may be issued either alone, in addition to, or in tandem with other awards granted under the Plan and/or cash awards made outside of the Plan. After the Administrator determines that it will offer Stock Purchase Rights under the Plan, it shall advise the offeree in writing or electronically, by means of a Notice of Grant, of the terms, conditions and restrictions related to the offer, including the number of Shares that the offeree shall be entitled to purchase, the price to be paid, and the time within which the offeree must accept such offer. The offer shall be accepted by execution of a Restricted Stock Purchase Agreement in the form determined by the Administrator.

10

(b) Repurchase Option. Unless the Administrator determines otherwise, the Restricted Stock Purchase Agreement shall grant the Company a repurchase option exercisable upon the voluntary or involuntary termination of the purchaser's service with the Company for any reason (including death or Disability). The purchase price for Shares repurchased pursuant to the Restricted Stock Purchase Agreement shall be the original price paid by the purchaser and may be paid by cancellation of any indebtedness of the purchaser to the Company. The repurchase option shall lapse at a rate determined by the Administrator.

(c) Other Provisions. The Restricted Stock Purchase Agreement shall contain such other terms, provisions and conditions not inconsistent with the Plan as may be determined by the Administrator in its sole discretion.

(d) Rights as a Shareholder. Once the Stock Purchase Right is exercised, the purchaser shall have the rights equivalent to those of a shareholder, and shall be a shareholder when his or her purchase is entered upon the records of the duly authorized transfer agent of the Company. No adjustment will be made for a dividend or other right for which the record date is prior to the date the Stock Purchase Right is exercised, except as provided in Section 14 of the Plan.

12. Non-Transferability of Options and Stock Purchase Rights. Unless determined otherwise by the Administrator, an Option or Stock Purchase Right may not be sold, pledged, assigned, hypothecated, transferred, or disposed of in any manner other than by will or by the laws of descent or distribution and may be exercised, during the lifetime of the Optionee, only by the Optionee. If the Administrator makes an Option or Stock Purchase Right transferable, such Option or Stock Purchase Right shall contain such additional terms and conditions as the Administrator deems appropriate.

13. Formula Option Grants to Outside Directors. Outside Directors shall be granted Options in accordance with the following provisions:

(a) All Options granted pursuant to this Section shall be Nonstatutory Stock Options and, except as otherwise provided herein, shall be subject to the other terms and conditions of the Plan.

(b) Except as provided in subsection (d) below, each person who first becomes an Outside Director on or after the IPO Effective Date, whether through election by the stockholders of the Company or appointment by the Board to fill a vacancy shall be automatically granted an Option to purchase up to

20,000 Shares (the "First Option") on the date he or she first becomes an Outside Director; provided, however, that an Inside Director who ceases to be an Inside Director but who remains a Director shall not receive a First Option.

(c) Except as provided in subsection (d) below, each Outside Director shall be automatically granted an Option to purchase up to 5,000 Shares (a "Subsequent Option") following each annual meeting of the stockholders of the Company occurring after the end of the Company's fiscal year 2000, if immediately after such meeting, he or she shall continue to serve on the Board and shall have served on the Board for at least the preceding six (6) months.

11

(d) Notwithstanding the provisions of subsections (b) and (c) hereof, any exercise of an Option granted before the Company has obtained stockholder approval of the Plan in accordance with Section 20 hereof shall be conditioned upon obtaining such stockholder approval of the Plan in accordance with Section 20 hereof.

(e) The terms of each First Option granted pursuant to this Section shall be as follows:

(i) the term of the Option shall be ten (10) years;

(ii) the exercise price per Share shall be 100% of the Fair Market Value per Share on the date of grant of the Option; and

(iii) 25% of the Shares subject to the Option shall vest twelve months after the date of grant and 1/16 of the Shares subject to the Option shall vest each quarter thereafter, provided that the Outside Director shall continue to serve on the Board on such dates.

(f) The terms of each Subsequent Option granted pursuant to this Section shall be as follows:

(i) the term of the Option shall be ten (10) years;

(ii) the exercise price per Share shall be 100% of the Fair Market Value per Share on the date of grant of the Option; and

(iii) the Option shall vest and become exercisable in full on the fourth anniversary after the date of grant provided that in each case the Outside Director shall continue to serve on the Board on such date.

14. Adjustments Upon Changes in Capitalization, Merger or Asset Sale.

(a) Changes in Capitalization. Subject to any required action by the stockholders of the Company, the number of shares of Common Stock covered by each outstanding Option or Stock Purchase Right, and the number of shares of Common Stock which have been authorized for issuance under the Plan but as to which no Options or Stock Purchase Rights have yet been granted or which have been returned to the Plan upon cancellation or expiration of an Option or Stock Purchase Right, as well as the price per share of Common Stock covered by each such outstanding Option or Stock Purchase Right, shall be proportionately adjusted for any increase or decrease in the number of issued shares of Common Stock resulting from a stock split, reverse stock split, stock dividend, combination or reclassification of the Common Stock effected without receipt of consideration by the Company. The conversion of any convertible securities of the Company shall not be deemed to have been "effected without receipt of consideration." Such adjustment shall be made by the Board, whose determination

in that respect shall be final, binding and conclusive. Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock subject to an Option or Stock Purchase Right.

12

(b) Dissolution or Liquidation. In the event of the proposed dissolution or liquidation of the Company, the Administrator shall notify each Optionee as soon as practicable prior to the effective date of such proposed transaction. The Administrator in its discretion may provide for an Optionee to have the right to exercise his or her Option or Stock Purchase Right until fifteen (15) days prior to such transaction as to all of the Optioned Stock covered thereby, including Shares as to which the Option or Stock Purchase Right would not otherwise be exercisable. In addition, the Administrator may provide that any Company repurchase option applicable to any Shares purchased upon exercise of an Option or Stock Purchase Right shall lapse as to all such Shares, provided the proposed dissolution or liquidation takes place at the time and in the manner contemplated. To the extent it has not been previously exercised, an Option or Stock Purchase Right will terminate immediately prior to the consummation of such proposed action.

(c) Merger or Asset Sale. Subject to Section 15 below, in the event of a merger of the Company with or into another corporation, or the sale of substantially all of the assets of the Company (a "Merger"), each outstanding Option and Stock Purchase Right shall be assumed or an equivalent option or right substituted by the successor corporation or a Parent or Subsidiary of the successor corporation (the "Successor Corporation"). In the event that the Successor Corporation refuses to assume or substitute for the Option or Stock Purchase Right, the Optionee shall fully vest in and have the right to exercise the Option or Stock Purchase Right as to all of the Optioned Stock, including Shares as to which it would not otherwise be vested or exercisable. If an Option or Stock Purchase Right becomes fully vested and exercisable in lieu of assumption or substitution in the event of a Merger, the Administrator shall notify the Optionee in writing or electronically that the Option or Stock Purchase Right shall be fully vested and exercisable for a period of fifteen (15) days from the date of such notice, and the Option or Stock Purchase Right shall terminate upon the expiration of such period. For the purposes of this Section 14(c), the Option or Stock Purchase Right shall be considered assumed if, following the Merger, the option or right confers the right to purchase or receive, for each Share of Optioned Stock subject to the Option or Stock Purchase Right immediately prior to the Merger, the consideration (whether stock, cash, or other securities or property) received in the Merger by holders of Common Stock for each Share held on the effective date of the transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares); provided, however, that if such consideration received in the Merger is not solely common stock of the Successor Corporation or its Parent, the Administrator may, with the consent of the Successor Corporation, provide for the consideration to be received upon the exercise of the Option or Stock Purchase Right, for each Share of Optioned Stock subject to the Option or Stock Purchase Right, to be solely common stock of the Successor Corporation or its Parent equal in fair market value to the per share consideration received by holders of Common Stock in the Merger.

15. Change of Control. In the event of a Change of Control, each outstanding Option held by an Outside Director shall vest and become exercisable in full as

to all of the Optioned Stock, including Shares as to which the Outside Director would not otherwise be vested or exercisable. If an Option becomes fully vested and exercisable as provided in this paragraph, the Administrator shall notify the Optionee in writing or electronically that the Option shall be fully vested and exercisable for a period of fifteen (15) days from the date of such notice, and the Option shall terminate upon the expiration of such period.

16. Date of Grant. The date of grant of an Option or Stock Purchase Right shall be, for all purposes, the date on which the Administrator makes the determination granting such Option or Stock Purchase Right, or such other later date as is determined by the Administrator. Notice of the determination shall be provided to each Optionee within a reasonable time after the date of such grant.

17. Amendment and Termination of the Plan.

(a) Amendment and Termination. The Board may at any time amend, alter, suspend or terminate the Plan.

(b) Shareholder Approval. The Company shall obtain shareholder approval of any Plan amendment to the extent necessary and desirable to comply with Applicable Laws.

(c) Effect of Amendment or Termination. No amendment, alteration, suspension or termination of the Plan shall impair the rights of any Optionee, unless mutually agreed otherwise between the Optionee and the Administrator, which agreement must be in writing and signed by the Optionee and the Company. Termination of the Plan shall not affect the Administrator's ability to exercise the powers granted to it hereunder with respect to Options granted under the Plan prior to the date of such termination.

18. Conditions Upon Issuance of Shares.

(a) Legal Compliance. Shares shall not be issued pursuant to the exercise of an Option or Stock Purchase Right unless the exercise of such Option or Stock Purchase Right and the issuance and delivery of such Shares shall comply with Applicable Laws and shall be further subject to the approval of counsel for the Company with respect to such compliance.

(b) Investment Representations. As a condition to the exercise of an Option or Stock Purchase Right, the Company may require the person exercising such Option or Stock Purchase Right to represent and warrant at the time of any such exercise that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required.

19. Inability to Obtain Authority. The inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is deemed by the Company's counsel to be necessary to the lawful issuance and sale of any Shares hereunder, shall relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority shall not have been obtained.

14

20. Reservation of Shares. The Company, during the term of this Plan, will at all times reserve and keep available such number of Shares as shall be sufficient to satisfy the requirements of the Plan.

21. Shareholder Approval. The Plan shall be subject to approval by the

shareholders of the Company within twelve (12) months after the date the Plan is adopted. Such shareholder approval shall be obtained in the manner and to the degree required under Applicable Laws.

15

NUMERICAL TECHNOLOGIES, INC.

NOTICE OF STOCK OPTION GRANT

Name Address City, State Zip Code

You have been granted an option to purchase Common Stock of the Company under the Company's 2000 Stock Plan (Rev 1.00) (the "Plan"), Subject to the terms and conditions of the Plan and the Company's standard Stock Option Agreement (Rev. 1.00) (the "Agreement"), as follows (Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings herein):

Date of Grant:

Vesting Commencement Date:

Exercise Price per Share:

Total Number of Shares Granted:

Total Exercise Price:

Type of Option:

Term Expiration Date:

____ Nonstatutory Stock Option

____ Incentive Stock Option

10 Years/ ____, 20_

Vesting Schedule:

Subject to accelerated vesting as set forth in the Agreement, Option may be exercised, in whole or in part, in accordance with the following schedule:

One-fourth (1/4th) of the Shares subject to the Option shall vest twelve months after the Vesting Commencement Date, and one-sixteenth (1/16th) of the Shares subject to the Option shall vest on the last day of each three month anniversary thereafter, subject to your continuing to be a Service Provider on such dates.

Termination Period:

This Option may be exercised for thirty days after Optionee ceases to be a Service Provider. Upon the death or Disability of the Optionee, this Option may be exercised for twelve months after Optionee ceases to be a Service Provider. In no event shall this Option be exercised later than the Term/Expiration Date as provided above. 16

By your signature and the signature of the Company's representative below, you and the Company agree that this Option is granted under and governed by the terms and conditions of the Plan and Stock Option Agreement referenced above. Optionee has reviewed the Plan and Stock Option Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Option Agreement and fully understands all provisions of the Plan and Option Agreement. Optionee hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions relating to the Plan and Option Agreement. Optionee further agrees to notify the Company upon any change in the residence address indicated below.

OPTIONEE:	NUMERICAL TECHNOLOGIES, INC.
Signature	Ву
Print Name	

CONSENT OF SPOUSE

The undersigned spouse of Optionee has read and hereby approves the terms and conditions of the Plan and this Option Agreement. In consideration of the Company's granting his or her spouse the right to purchase Shares as set forth in the Plan and this Option Agreement, the undersigned hereby agrees to be irrevocably bound by the terms and conditions of the Plan and this Option Agreement and further agrees that any community property interest shall be similarly bound. The undersigned hereby appoints the undersigned's spouse as attorney-in-fact for the undersigned with respect to any amendment or exercise of rights under the Plan or this Option Agreement.

Spouse of Optionee

17

NUMERICAL TECHNOLOGIES, INC.

2000 STOCK OPTION PLAN

STOCK OPTION AGREEMENT (Rev 1.01)

Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings in this Option Agreement.

AGREEMENT

Grant of Option.

The Plan Administrator of the Company hereby grants to the Optionee named in the Notice of Grant incorporated by reference in this Agreement (the "Optionee") an option (the "Option") to purchase the number of Shares, as set forth in the Notice of Grant, at the exercise price per share set forth in the Notice of Grant (the "Exercise Price"), subject to the terms and conditions of the Plan, which is incorporated herein by reference. Subject to Section 17(c) of the Plan, in the event of a conflict between the terms and conditions of the Plan and the terms and conditions of this Option Agreement, the terms and conditions of the Plan shall prevail.

If designated in the Notice of Grant as an Incentive Stock Option ("ISO"), this Option is intended to qualify as an Incentive Stock Option under Section 422 of the Code. However, if this Option is intended to be an Incentive Stock Option, to the extent that it exceeds the \$100,000 rule of Code Section 422(d) it shall be treated as a Nonstatutory Stock Option ("NSO").

Exercise of Option.

Right to Exercise.

Subject to subsection B(a)(ii) and B(a)(iii) below, this Option shall be exercisable cumulatively according to the vesting schedule set forth in the Notice of Grant. Alternatively, at the election of the Optionee, this option may be exercised in whole or in part at any time as to Shares which have not yet vested. For purposes of this Stock Option Agreement, Shares subject to the Option shall vest based on continued employment of Optionee with the Company. Vested Shares shall not be subject to the Company's repurchase right (as set forth in the Restricted Stock Purchase Agreement, attached hereto as Exhibit B

As a condition to exercising this Option for unvested Shares, the Optionee shall execute the Restricted Stock Purchase Agreement.

This option may not be exercised for a fraction of a share.

1

Method of Exercise. This Option is exercisable by delivery of an exercise notice, in the form attached as Exhibit A (the "Exercise Notice"), which shall state the election to exercise the Option, the number of Shares in respect of which the Option is being exercised (the "Exercised Shares"), and such other representations and agreements as may be required by the Company pursuant to the provisions of the Plan. The Exercise Notice shall be completed by the Optionee and delivered to the Chief Financial Officer of the Company. The Exercise Notice shall be accompanied by payment of the aggregate Exercise Price as to all Exercised Shares. This Option shall be deemed to be exercised upon receipt by the Company of such fully executed Exercise Notice accompanied by such aggregate Exercise Price.

No Shares shall be issued pursuant to the exercise of this Option unless such issuance and exercise complies with Applicable Laws. Assuming such compliance, for income tax purposes the Exercised Shares shall be considered transferred to the Optionee on the date the Option is exercised with respect to such Exercised Shares.

Method of Payment.

Payment of the aggregate Exercise Price shall be by any of the following, or a combination thereof, at the election of the Optionee:

cash; or

check; or

consideration received by the Company under a cashless exercise program implemented by the Company in connection with the Plan; or

surrender of other Shares which (i) in the case of Shares acquired upon exercise of an option, have been owned by the Optionee for more than six (6) months on the date of surrender, and (ii) have a Fair Market Value on the date of surrender equal to the aggregate Exercise Price of the Exercised Shares; or

to the extent permitted by the Administrator, delivery of a properly executed exercise notice together with such other documentation as the Administrator and the broker, if applicable, shall require to effect an exercise of the Option and delivery to the Company of the sale proceeds required to pay the Exercise Price.

Non-Transferability of Option.

This Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of Optionee only by the Optionee. The terms of the Plan and this Option Agreement shall be binding upon the executors, administrators, heirs, successors and assigns of the Optionee.

2

Term of Option.

This Option may be exercised only within the term set out in the Notice of Grant, and may be exercised during such term only in accordance with the Plan and the terms of this Option Agreement.

Tax Consequences.

Some of the federal tax consequences relating to this Option, as of the date of this Option, are set forth below. THIS SUMMARY IS NECESSARILY INCOMPLETE, AND THE TAX LAWS AND REGULATIONS ARE SUBJECT TO CHANGE. THE OPTIONEE SHOULD CONSULT A TAX ADVISER BEFORE EXERCISING THIS OPTION OR DISPOSING OF THE SHARES.

Exercising the Option.

Nonstatutory Stock Option. The Optionee may incur regular federal income tax liability upon exercise of a NSO. The Optionee will be treated as having received compensation income (taxable at ordinary income tax rates) equal to the excess, if any, of the Fair Market Value of the Exercised Shares on the date of exercise over their aggregate Exercise Price. If the Optionee is an Employee or a former Employee, the Company will be required to withhold from his or her compensation or collect from Optionee and pay to the applicable taxing authorities an amount in cash equal to a percentage of this compensation income at the time of exercise, and may refuse to honor the exercise and refuse to deliver Shares if such withholding amounts are not delivered at the time of exercise.

Incentive Stock Option. If this Option qualifies as an ISO, the Optionee will have no regular federal income tax liability upon its exercise, although the excess, if any, of the Fair Market Value of the Exercised Shares on the date of exercise over their aggregate Exercise Price will be treated as an adjustment to alternative minimum taxable income for federal tax purposes and may subject the Optionee to alternative minimum tax in the year of

exercise. In the event that the Optionee ceases to be an Employee but remains a Service Provider, any Incentive Stock Option of the Optionee that remains unexercised shall cease to qualify as an Incentive Stock Option and will be treated for tax purposes as a Nonstatutory Stock Option on the date three (3) months and one (1) day following such change of status.

Disposition of Shares.

NSO. If the Optionee holds NSO Shares for at least one year, any gain realized on disposition of the Shares will be treated as long-term capital gain for federal income tax purposes.

ISO. If the Optionee holds ISO Shares for at least one year after exercise and two years after the grant date, any gain realized on disposition of the Shares will be treated as long-term capital gain for federal income tax purposes. if the Optionee disposes of ISO Shares within one year after exercise or two years after the grant date, any gain realized on such

3

disposition will be treated as compensation income (taxable at ordinary income rates) to the extent of the excess, if any, of the lesser of (A) the difference between the Fair Market Value of the Shares acquired on the date of exercise and the aggregate Exercise Price, or (B) the difference between the sale price of such Shares and the aggregate Exercise Price. Any additional gain will be taxed as capital gain, short-term or long-term depending on the period that the ISO Shares were held.

Notice of Disgualifying Disposition of ISO Shares. If the Optionee sells or otherwise disposes of any of the Shares acquired pursuant to an ISO on or before the later of (i) two years after the grant date, or (ii) one year after the exercise date, the Optionee shall immediately notify the Company in writing of such disposition. The Optionee agrees that he or she may be subject to income tax withholding by the Company on the compensation income recognized from such early disposition of ISO Shares by payment in cash or out of the current earnings paid to the Optionee.

Section 83(b) Election for Unvested Shares Purchased Pursuant to Options. With respect to the exercise of an Option for unvested Shares, an election may be filed by the Optionee with the Internal Revenue Service, within 30 days of the purchase of the Shares, electing pursuant to Section 83(b) of the Code to be taxed currently on any difference between the purchase price of the Shares and their Fair Market Value on the date of purchase. In the case of a Nonstatutory Stock Option, this will result in a recognition of taxable income to the Optionee on the date of exercise, measured by the excess, if any, of the fair market value of the Shares, at the time the Option is exercised over the purchase price for the Shares. Absent such an election, taxable income will be measured and recognized by Optionee at the time or times on which the Company's Repurchase Option lapses. In the case of an Incentive Stock Option, such an election will result in a recognition of income to the Optionee for alternative minimum tax purposes on the date of exercise, measured by the excess, if any, of the fair market value of the Shares, at the time the option is exercised, over the purchase price for the Shares. Absent such an election, alternative minimum taxable income will be measured and recognized by Optionee at the time or times on which the Company's Repurchase Option lapses. Optionee is strongly encouraged to seek the advice of his or her own tax consultants in connection with the purchase of the Shares and the advisability of filing of the Election under Section 83(b) of the Code. A form of Election under Section 83(b) is attached hereto as Exhibit C for reference

OPTIONEE ACKNOWLEDGES THAT IT IS OPTIONEE'S SOLE RESPONSIBILITY AND

NOT THE COMPANY'S TO FILE TIMELY THE ELECTION UNDER SECTION 83(b), EVEN IF OPTIONEE REQUESTS THE COMPANY OR ITS REPRESENTATIVE TO MAKE THIS FILING ON OPTIONEE'S BEHALF.

4

Entire Agreement: Governing Law.

The Plan is incorporated herein by reference. The Plan and this Option Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Optionee with respect to the subject matter hereof, and may not be modified adversely to the Optionee's interest except by means of a writing signed by the Company and Optionee. This agreement is governed by the internal substantive laws, but not the choice of law rules, of California.

NO GUARANTEE OF CONTINUED SERVICE.

OPTIONEE ACKNOWLEDGES AND AGREES THAT THE VESTING OF SHARES PURSUANT TO THE VESTING SCHEDULE HEREOF IS EARNED ONLY BY CONTINUING AS A SERVICE PROVIDER AT THE WILL OF THE COMPANY (AND NOT THROUGH THE ACT OF BEING HIRED, BEING GRANTED AN OPTION OR PURCHASING SHARES HEREUNDER). OPTIONEE FURTHER ACKNOWLEDGES AND AGREES THAT THIS AGREEMENT, THE TRANSACTIONS CONTEMPLATED HEREUNDER AND THE VESTING SCHEDULE SET FORTH HEREIN DO NOT CONSTITUTE AN EXPRESS OR IMPLIED PROMISE OF CONTINUED ENGAGEMENT AS A SERVICE PROVIDER FOR THE VESTING PERIOD, FOR ANY PERIOD, OR AT ALL, AND SHALL NOT INTERFERE WITH OPTIONEE'S RIGHT OR THE COMPANY'S RIGHT TO TERMINATE OPTIONEE'S RELATIONSHIP AS A SERVICE PROVIDER AT ANY TIME, WITH OR WITHOUT CAUSE.

5

EXHIBIT A

NUMERICAL TECHNOLOGIES, INC.

2000 STOCK PLAN

EXERCISE NOTICE

Numerical Technologies, Inc. 70 West Plumeria Drive San Jose, CA 95134

Attention: Corporate Secretary

1. Exercise of Option. Effective as of today, ______, 20_, the undersigned ("Purchaser") hereby elects to purchase _______ shares (the "Shares") of the Common Stock of Numerical Technologies, Inc. (the "Company") under and pursuant to the 2000 Stock Plan (the "Plan") and the Stock Option Agreement dated ______, 20_, (the "Option Agreement"). The purchase price for the Shares shall be \$______ as required by the Option Agreement.

 $\ 2.$ Delivery of Payment. Purchaser herewith delivers to the Company the full purchase price for the Shares.

3. Representations of Purchaser. Purchaser acknowledges that Purchaser has received, read and understood the Plan and the Option Agreement and agrees to abide by and be bound by their terms and conditions.

4. Rights as Shareholder. Until the issuance (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company) of the Shares, no right to vote or receive dividends or any other rights as a shareholder shall exist with respect to the Optioned Stock, notwithstanding the exercise of the Option. The Shares so acquired shall be issued to the Optionee as soon as practicable after exercise of the Option. No adjustment will be made for a dividend or other right for which the record date is prior to the date of issuance, except as provided in Section 13 of the Plan.

5. Tax Consultation. Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted with any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

6. Entire Agreement: Governing Law. The Plan and Option Agreement are incorporated herein by reference. This Agreement, the Plan and the Option Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Purchaser with respect to the subject matter

1

hereof, and may not be modified adversely to the Purchaser's interest except by means of a writing signed by the Company and Purchaser. This agreement is governed by the internal substantive laws, but not the choice of law rules, of California.

Submitted by:

PURCHASER:

Signature

Print Name

Address:

Accepted by:

NUMERICAL TECHNOLOGIES, INC.

By

Its

Address:

NUMERICAL TECHNOLOGIES, INC.

70 West Plumeria Drive San Jose, CA 95134

Date Received

2

EXHIBIT B

NUMERICAL TECHNOLOGIES, INC.

1997 STOCK PLAN

RESTRICTED STOCK PURCHASE AGREEMENT

THIS AGREEMENT is made between ______(the "Purchaser") and Numerical Technologies, Inc. (the "Company") as of

RECITALS

(1) Pursuant to the exercise of the stock option granted to Purchaser under the Company's 1997 Stock Plan (the "Plan") and pursuant to the Stock Option Agreement (the "Option Agreement") dated ______, ____ by and between the Company and Purchaser with respect to such grant, which Plan and Option Agreement are hereby incorporated by reference, Purchaser has elected to purchase _______ of those shares which have not become vested under the vesting schedule set forth in the Option Agreement ("Unvested Shares"). The Unvested Shares and the shares subject to the Option Agreement, which have become vested, are sometimes collectively referred to herein as the "Shares".

(2) As required by the Option Agreement, as a condition to Purchaser's election to exercise the option, Purchaser must execute this Restricted Stock Purchase Agreement, which sets forth the rights and obligations of the parties with respect to Shares acquired upon exercise of the Option.

22. Repurchase Option.

(a) If Purchaser's status as a Service Provider is terminated for any reason, including for cause, death, and disability, the Company shall have the right and option to purchase from Purchaser, or Purchaser's personal representative, as the case may be, all of the Purchaser's Unvested Shares as of the date of such termination at the price paid by the Purchaser for such Shares (the "Repurchase Option").

(b) Upon the occurrence of a termination, the Company may exercise its Repurchase Option by delivering personally or by registered mail, to Purchaser (or his transferee or legal representative, as the case may be), within ninety (90) days of the termination, a notice in writing indicating the Company's intention to exercise the Repurchase Option and setting forth a date for closing not later than thirty (30) days from the mailing of such notice. The closing shall take place at the Company's office. At the closing, the holder of the certificates for the Unvested Shares being transferred shall deliver the stock certificate or certificates evidencing the Unvested Shares, and the Company shall deliver the purchase price therefore.

(c) At its option, the Company may elect to make payment for the Unvested Shares to a bank selected by the Company. The Company shall avail

1

itself of this option by a notice in writing to Purchaser stating the name and address of the bank, date of closing, and waiving the closing at the Company's

office.

(d) If the Company does not elect to exercise the Repurchase Option conferred above by giving the requisite notice within ninety (90) days following the termination, the Repurchase Option shall terminate.

(e) The Repurchase Option shall terminate in accordance with the Vesting Schedule in Optionee's Option Agreement.

23. Transferability of the Shares: Escrow.

(a) Purchaser hereby authorizes and directs the secretary of the Company, or such other person designated by the Company, to transfer the Unvested Shares as to which the Repurchase Option has been exercised from Purchaser to the Company.

(b) To insure the availability for delivery of Purchaser's Unvested Shares upon repurchase by the Company pursuant to the Repurchase Option under Section 1, Purchaser hereby appoints the secretary, or any other person designated by the Company as escrow agent, as its attorney-in-fact to sell, assign and transfer unto the Company, such Unvested Shares, if any, repurchased by the Company pursuant to the Repurchase Option and shall, upon execution of this Agreement, deliver and deposit with the secretary of the Company, or such other person designated by the Company, the share certificates representing the Unvested Shares, together with the stock assignment duly endorsed in blank, attached hereto as Exhibit C-2. The Unvested Shares and stock assignment shall be held by the secretary in escrow, pursuant to the Joint Escrow Instructions of the Company and Purchaser attached as Exhibit C-3 hereto, until the Company exercises its purchase right as provided in Section 1, until such Unvested Shares are vested, or until such time as this Agreement no longer is in effect. As a further condition to the Company's obligations under this Agreement, the spouse of the Purchaser, if any, shall execute and deliver to the Company the Consent of Spouse attached hereto as Exhibit C-4. Upon vesting of the Unvested Shares, the escrow agent shall promptly deliver to the Purchaser the certificate or certificates representing such Shares in the escrow agent's possession belonging to the Purchaser, and the escrow agent shall be discharged of all further obligations hereunder; provided, however, that the escrow agent shall nevertheless retain such certificate or certificates as escrow agent if so required pursuant to other restrictions imposed pursuant to this Agreement.

(c) The Company, or its designee, shall not be liable for any act it may do or omit to do with respect to holding the Shares in escrow and while acting in good faith and in the exercise of its judgment.

(d) Transfer or sale of the Shares is subject to restrictions on transfer imposed by any applicable state and federal securities laws. Any transferee shall hold such Shares subject to all the provisions hereof and the Exercise Notice executed by the Purchaser with respect to any Unvested Shares purchased by Purchaser and shall acknowledge the same by signing a copy of this Agreement.

2

24. Ownership, Voting Rights, Duties. This Agreement shall not affect in any way the ownership, voting rights or other rights or duties of Purchaser, except as specifically provided herein.

25. Legends. The share certificate evidencing the Shares issued hereunder shall be endorsed with the following legend (in addition to any legend required under applicable state securities laws):

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS UPON TRANSFER AND RIGHTS OF REPURCHASE AS SET FORTH IN AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

26. Adjustment for Stock Split. All references to the number of Shares and the purchase price of the Shares in this Agreement shall be appropriately adjusted to reflect any stock split, stock dividend or other change in the Shares which may be made by the Company after the date of this Agreement.

27. Notices. Notices required hereunder shall be given in person or by registered mail to the address of Purchaser shown on the records of the Company, and to the Company at their respective principal executive offices.

28. Survival of Terms. This Agreement shall apply to and bind Purchaser and the Company and their respective permitted assignees and transferees, heirs, legatees, executors, administrators and legal successors.

29. Section 83(b) Election. Purchaser hereby acknowledges that he or she has been informed that, with respect to the exercise of an Option for unvested Shares, an election may be filed by the Purchaser with the Internal Revenue Service, within 30 days of the purchase of the Shares, electing pursuant to Section 83(b) of the Code to be taxed currently on any difference between the purchase price of the Shares and their Fair Market Value on the date of purchase. In the case of a Nonstatutory Stock Option, this will result in a recognition of taxable income to the Purchaser on the date of exercise, measured by the excess, if any, of the fair market value of the Shares, at the time the Option is exercised over the purchase price for the Shares. Absent such an election, taxable income will be measured and recognized by Purchaser at the time or times on which the Company's Repurchase Option lapses. In the case of an Incentive Stock Option, such an election will result in a recognition of income to the Purchaser for alternative minimum tax purposes on the date of exercise, measured by the excess, if any, of the fair market value of the Shares, at the time the option is exercised, over the purchase price for the Shares. Absent such an election, alternative minimum taxable income will be measured and recognized by Purchaser at the time or times on which the Company's Repurchase Option lapses. Purchaser is strongly encouraged to seek the advice of his or her own tax consultants in connection with the purchase of the Shares and the advisability of filing of the Election under Section 83(b) of the Code. A form of Election under Section 83(b) is attached hereto as Exhibit C-5 for reference.

3

PURCHASER ACKNOWLEDGES THAT IT IS PURCHASER'S SOLE RESPONSIBILITY AND NOT THE COMPANY'S TO FILE TIMELY THE ELECTION UNDER SECTION 83(b), EVEN IF PURCHASER REQUESTS THE COMPANY OR ITS REPRESENTATIVE TO MAKE THIS FILING ON PURCHASER'S BEHALF.

30. Representations. Purchaser has reviewed with his own tax advisors the federal, state, local and foreign tax consequences of this investment and the transactions contemplated by this Agreement. Purchaser is relying solely on such advisors and not on any statements or representations of the Company or any of its agents. Purchaser understands that he (and not the Company) shall be responsible for his own tax liability that may arise as a result of this investment or the transactions contemplated by this Agreement.

31. Governing Law. This Agreement shall be governed by the internal substantive laws, but not the choice of law rules, of California.

Purchaser represents that he has read this Agreement and is familiar

with its terms and provisions. Purchaser hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Board upon any questions arising under this Agreement.

IN WITNESS WHEREOF, this Agreement is deemed made as of the date first set forth above.

"COMPANY"

NUMERICAL TECHNOLOGIES, INC.

Ву

Title

"PURCHASER"

Signature

Printed Name

Soc. Sec. No.

Address:

EXHIBIT C

SECTION 83(b) ELECTION

This statement is made under Section 83(b) of the Internal Revenue code of 1986, as amended, pursuant to Treasury Regulations Section 1.83-2.

(1)	Taxpayer: Name: Address:
	Social Security No.:
(2)	The property with respect to which the election is made is shares of the common Stock of Numerical Technologies, Inc.
(3)	The property was transferred on, 200 (
(4)	The taxable year for which the election is made is the calendar year 200
(5)	The property is subject to a repurchase right pursuant to which the issuer has the right to acquire the property at the original purchase price if for any reason taxpayer's service with the issuer is terminated. The issuer's repurchase right lapses in a series of installments over ayear period ending on
(6)	The fair market value of such property at the time of transfer (determined without regard to any restriction other than a restriction which by its terms will never lapse) is \qquad per share.
(7)	The amount paid for such property is $_$ per share.
(8)	A copy of this statement was furnished to Numerical

- (8) A copy of this statement was furnished to Numerical Technologies, Inc., for whom taxpayer rendered the services underlying the transfer of such property.
- (9) This statement is executed on _____ 200_.

Signature of Spouse (if any)

Signature of Taxpayer

This election must be filed with the Internal Revenue Service Center with which the optionee files his or her federal income tax returns and must be filed within 30 days after the date of purchase. This filing should be made by registered or certified mail, return receipt requested. The optionee must retain two copies of the completed form for filing with his or her federal and state tax returns for the current tax year and an additional copy for his or her records. 6

Exhibit 4.6

CADABRA DESIGN LIBRARIES INC.

STOCK OPTION PLAN

1. Definitions. In this Plan:

- (a) "Board" means the board of directors of the Corporation;
- (b) "Consultant" means a person who is engaged by the Corporation or a Subsidiary to render management or consulting services to the Corporation;
- (c) "Corporation" means CADABRA DESIGN LIBRARIES INC., and includes any successor corporation thereto;
- (d) "Date of Grant" means the date a Participant is granted an Option;
- (e) "Director" means a member of the Board;
- (f) "Employee" means a person employed on a full-time basis by the Corporation or a Subsidiary;
- (g) "Officer" means an officer of the Corporation duly appointed by the Board;
- (h) "Option" means a contract complying with the provisions of this Plan between the Corporation and a Participant pursuant to which the Participant has a right to subscribe for unissued Shares;
- "Participant" means a Consultant, Officer, Director or Employee or former Employee who is a party to an Option;
- (j) "Plan" means the Cadabra Design Libraries Inc. Stock Option Plan;
- (k) "Shares" means Class A common shares or Class B common shares without nominal or par value in the capital of the Corporation, and, in the event of an adjustment contemplated by Section 4 hereof, such other shares or securities to which a Participant may be entitled upon the exercise of an Option as a result of such adjustment; and
- (1) "Subsidiary" means any corporation that is a subsidiary of the Corporation as such term is defined in subsection 2(5) of the Canada Business Corporations Act, as amended from time to time.

2. Purpose. The purpose of the plan is to provide Consultants, Officers, Directors and Employees with a proprietary interest in the Corporation through the granting of options to purchase Shares in order to:

- (a) increase the interest in the Corporation's welfare of those individuals who share primary responsibility for the management, growth and protection of the business of the Corporation;
- (b) recognize the contributions made by certain individuals to the Corporation's growth during its development stage;
- (c) furnish an incentive to such individuals to continue providing their services to the Corporation; and
- (d) provide a means through which the Corporation may attract able persons to engage as Employees and Consultants.

3. Administration. The Plan shall be administered by the Board. No Director shall take any action with respect to Options granted to such Director.

The Board shall have full and final authority in its discretion, but subject to the provisions of the Plan, to determine from time to time the individuals to whom Options shall be granted and the number of Shares to be covered by each Option; to determine the time or times at which Options shall be granted; to interpret the Plan; to make, amend and rescind rules and regulations relating to the Plan; to determine the terms and provisions of the instruments by which Options shall be evidenced; and to make all other determinations necessary or advisable for the administration of the Plan.

The Board shall have the discretion to appoint not less than three (3) Directors (the "Committee") who shall have the authority the administer the plan, provided that no member of the Committee shall take any action with respect to Options granted to such member. If and once appointed, the Committee shall select one of its members as its Chairman and shall hold its meetings at such time and place as it shall deem advisable. A majority of the members of the Committee shall constitute a quorum and all actions of the Committee shall be taken by a majority of the members present at any meeting. Any action of the Committee may be taken by an instrument or instruments in writing signed by all the members of the Committee present at a meeting of the votes cast by the members of the Committee present at a meeting of such members duly called and held. Except as otherwise provided by the terms of the Plan or the Board, the Committee, once appointed shall have all the power and authority of the Board hereunder.

Nothing contained in the Plan or any Option shall be construed in any way so as to prevent the Corporation or any Subsidiary from taking any corporate action which is deemed by the Corporation or the Subsidiary to be appropriate or in its best interest, even if such action would have an adverse effect on the Plan.

4. Plan Restrictions. The following restrictions shall apply to the granting of Options under the Plan:

2

- (a) the maximum number of Shares that may be issued from time to time pursuant to the Plan, together with any other Shares reserved for issuance under any options for services or employee stock purchase or stock option plans or any other plans, shall not exceed 250,000 Shares;
- (b) the number of Shares subject to option in favour of any one

Participant, together with any other Shares reserved for issuance under any other plans to such Participant, shall not exceed 5% of the total number of issued and outstanding Shares at the Date of Grant of his Option; and

(c) no Option shall extend for a period of more than ten (10) years from its Date of Grant.

Notwithstanding the terms of this Section 4 or any other Section in the Plan, the Board may adjust the number of Shares available for Options, the number of Shares subject to Options and the exercise price of Options granted hereunder to effect a change in capitalization of the Corporation, such as a stock dividend, stock split, reverse stock split, share combination, exchange of shares, merger, consolidation, reorganization, liquidation, or the like, of or by the Corporation. No fractional shares may be purchased or issued under the Plan.

5. Participants. The Board may, from time to time, select particular Consultants, Officers, Directors and Employees of the Corporation to whom Options are to be granted, and upon the granting of such Options, the selected individuals shall become Participants under the Plan.

6. Shares Subject to the Plan. The Shares subject to Options granted pursuant to the Plan shall be authorized but unissued Shares. Shares that by reason of the expiration of an Option, or for any other reason, are no longer subject to purchase pursuant to an Option granted under the Plan, and Shares from time to time rendered in payment of the exercise price of Options, may be made subject to additional Options granted pursuant to the Plan.

7. Grant of Options. Options may be granted by the corporation pursuant to the recommendations of the Board. Options granted hereunder shall be evidenced by written stock option agreements containing such terms and provisions as are recommended and approved from time to time by the Board, but subject to and not more favourable than the terms of the Plan. The Board may from time to time require additional terms which the Board deems necessary or advisable. The Corporation shall execute stock option agreements upon instruction from the Board.

8. Option Exercise Price. The purchase price of Shares subject to an Option granted pursuant to the Plan shall be determined by the Board on the Date of Grant.

9. Restrictions. The Board may, but need not, at the time of granting of an Option or at any subsequent time impose such restrictions, if any, on issuance, voluntary disposition and release from escrow of any Options including, without limitation, permitting exercise of Options only in installments over a period of years.

10. Exercise and Payment. Subject to the provisions of the Plan, an Option may be exercised from time to time by delivery to the Corporation at its registered office of a written notice of exercise addressed to the Secretary of

3

the Corporation specifying the number of shares with respect to which the Option is being exercised. Full payment for Shares purchased upon the exercise of an Option shall be delivered to the Corporation with the notice of exercise. No Shares shall be issued until full payment has been made and a Participant shall have none of the rights of a shareholder of the Corporation in respect of the Shares subject to an Option until such Shares have been taken up, paid for in full and issued to him. Any federal, provincial or local taxes required to be

paid or withheld at the time of exercise shall also be paid or withheld in full prior to any delivery of Shares upon the exercise of an Option.

11. Loans to Participants. The Board, at its sole discretion, may authorize the Corporation to lend or cause to be lent to a Participant such portion of the purchase price of Shares purchased pursuant to an Option as it may determine. The terms and conditions of such a loan, which may be interest free, shall be determined by the Board, provided that the Participant shall be required to pledge to the Corporation any Shares purchased under an Option with the assistance of a loan.

12. Transferability of Options. An Option shall not be assignable or transferable by any Participant and may be exercised during the life of the Participant only by the Participant. The obligations of each Participant pursuant to the Plan and any Option shall be binding on his heirs, executors and administrators.

13. Date of Grant of an Option. The grant of an Option pursuant to the Plan shall occur only when a written option agreement shall have been duly executed and delivered by or on behalf of the Corporation to the Participant.

14. Rights in Event of Termination. If a Participant ceases to be a Consultant, Officer, Director or Employee otherwise than as a result of his death, his Option shall forthwith terminate, subject, however, to any specific provision to the contrary in such Option or as may be approved or authorized by the Board either before or after the Participant so ceases to be a Consultant, Officer, Director or Employee. In the case of the death of a Participant, his Option may be exercised, as to all of the optioned shares in respect of which such Option has not then been exercised, by his legal personal representative at any time within a period not exceeding thirty (30) days after the date of death of the Participant, but in no event after the expiry date of such Option, as is stipulated in such Option.

15. Amendment or Discontinuation. Subject to Section 4 hereof and any necessary approvals from the Corporation's shareholders, the Plan may be amended, altered or discontinued by the Board at any time.

16. Merger, Amalgamations, Sale of Assets, Winding-Up, etc. In the event of a merger, amalgamation, or consolidation of the Corporation with or into another corporation, or an offer to purchase all or substantially all of the outstanding shares of the Corporation or the sale of all or substantially all of the assets of the Corporation, each outstanding Option which is not fully exercisable shall be accelerated and become fully exercisable; provided, however, that if the successor corporation agrees to assume all outstanding options or substitute equivalent options therefore, then the Board, in its sole discretion, shall have the power to determine that Options which are not fully exercisable shall not be so accelerated but shall be so assumed or such equivalent options shall be substituted therefore. If the outstanding Options become fully exercisable as set forth in this Section 16, the Board shall notify

4

each Participant that such Options shall be fully exercisable for a period of thirty (30) days from the date of such notice, and the Option will terminate upon the expiration of such period.

In the event of the proposed dilution, liquidation or winding-up of the Corporation, to the extent that an Option has not been previously exercised, it will terminate immediately prior to the consummation of such proposed action. The Board may, in its sole discretion, declare that any Option shall terminate as of a date fixed by the Board and give each Participant the right to exercise

his option as to all or any part of the Shares, including Shares as to which the Option would not otherwise be exercisable.

17. Public Offering. If, at any time, an Option remains unexercised with respect to any Shares, the Board authorizes the Corporation to make a public offering of its securities, the Board may, in its sole discretion, (a) permit the Participants to exercise their Options in respect of all or any of the Shares in respect of which an Option has not been previously exercised at any time until a date which shall be specified by the Board and (b) the Board may, at its option, require the acceleration of the time for the exercise of the affected Options and of the time for the fulfillment of any conditions or restrictions on such exercise.

18. Employment. The Plan and any Option granted under the Plan do not confer upon the Participant any right to be employed or engaged or to continued employment or engagement by the Corporation or any Subsidiary.

19. No Right to be Granted an Option. Nothing in the Plan shall be construed so as to give any Consultant, Director, Officer or Employee any right to be granted an Option.

20. No Obligation to Exercise Option. The granting of an Option pursuant to the Plan shall not impose any obligation upon the Participant to exercise such Option.

21. Gender and Number. Words importing gender shall include the masculine, feminine and neuter genders. Words importing the singular include the plural and vice versa.

22. Governing Law. The Plan shall be construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein.

DATED this 31 day of March , 1995.

CADABRA DESIGN LIBRARIES INC.

By:_____

5

CADABRA DESIGN LIBRARIES INC.

AMENDMENT #1 TO STOCK OPTION PLAN DATED MARCH 15, 1995

Paragraph 4 subparagraph (a) of the Stock Option Plan dated March 15, 1995 is hereby revoked and amended to read as follows:

"(a) the maximum number of Shares that may be issued from time to time pursuant to the Plan, together with any other Shares reserved for issuance under any options for services or employee stock purchase or stock option plans or any other plans, shall not exceed 1,000,000 Shares;"

DATED this 26th day of June, 1996.

CADABRA DESIGN LIBRARIES INC.

By:_____

6

CADABRA DESIGN AUTOMATION INC.

AMENDMENT #2 TO STOCK OPTION PLAN

Paragraph 4 subparagraph (a) of the Stock Option Plan dated March 15, 1995, as amended by Amendment #1 dated June 25, 1996, is hereby revoked and amended to read as follows:

"(a) the maximum number of Shares that may be issued from time to time pursuant to the Plan, together with any other Shares reserved for issuance under any options for services or employee stock purchase or stock option plans or any other plans, shall not exceed 2,500,000 Shares;"

DATED this 30th day of June, 2000.

CADABRA DESIGN AUTOMATION INC.

By:_____

7

CADABRA DESIGN AUTOMATION INC.

OPTION AGREEMENT

THIS AGREEMENT made as of the 1st day of May, 2000

BETWEEN:

CADABRA DESIGN AUTOMATION INC., a corporation incorporated under the laws of the Province of Nova Scotia

(hereinafter called the "Corporation")

OF THE FIRST PART

- and -

Jerome Bastien, of the city of Ottawa in the Province of Ontario

(hereinafter called the "Participant")

OF THE SECOND PART

WHEREAS the Corporation has established a Stock Option Plan dated the 31st day of March, 1995 as amended the 26th day of June, 1996 (hereinafter called the "Plan") for consultants, officers, directors and full-time employees of the Corporation, or any of its subsidiaries;

AND WHEREAS the Participant is a employee of the Corporation and is eligible to participate under the Plan;

AND WHEREAS the Corporation wishes to offer the Participant the opportunity to purchase up to an aggregate of 10,000 Common Shares in the capital of the Corporation pursuant to the terms of the Plan and this Agreement;

AND WHEREAS the granting of an option to the Participant pursuant to the Plan on the terms and conditions hereinafter set forth has been duly authorized;

NOW THEREFORE THIS AGREEMENT WITNESSETH that in consideration of other good and valuable consideration and the sum of two dollars (\$2.00) now paid by the Participant to the Corporation (the receipt whereof is hereby acknowledged by the Corporation), it is agreed by and between the parties hereto as follows:

8

23. Definition

In this Agreement, the term "share" or "shares" shall mean, as the case may be, one or more Common Shares in the capital of the Corporation as constituted at the date of this Agreement.

24. Grant of Option

The Corporation hereby grants to the Participant, subject to the terms and conditions hereinafter set out, an irrevocable option (hereinafter called the "option") to purchase 10,000 shares of the Corporation (the said shares being hereinafter called the "optioned shares"), at the price of two dollars (\$2.00) per optioned share.

25. Vesting of Option

Except as otherwise provided herein, the option shall be exercisable on and after the Initial Vesting Date (as defined below) based on the following calculation (the "Vesting Ratio"):

 $A = (B \times C) - D$

Where A = the number of optioned shares purchasable at the time;

- B = the aggregate number of optioned shares purchasable under this option;
- C = 1 1/4 plus 1/48 for each complete month of Service provided to the Participant Corporation Group by the Participant commencing on the Initial Vesting Date until such ratio equals 1/1; and
- D = the number of optioned shares previously purchased under this option by the Participant.

For the purposes of this Agreement:

- (a) "Date of Option Grant" means May 1, 2000.
- (b) "Initial Vesting Date" means the date occurring one (1) year after (check one):
 - (i) [] the Date of Option Grant.

(c) "Service" means the Participant's employment or service with the Corporation, or any of its subsidiaries (collectively, the "Participant Corporation Group"), whether in the capacity of consultant, officer, director or full-time employee. The Participant's Service shall not be deemed to have terminated merely because of a change in

9

the capacity in which the Participant renders Service to the Participating Corporation Group or a change in the member of the Participant Corporation Group for which the Participant renders such Service, provided that there is no interruption or termination of the Participant's Service. Furthermore, the Participant's Service with the Participating Corporation Group shall not be deemed to have terminated if the Participant takes any military leave, sick leave, or other bona fide leave of absence approved by the Corporation; provided, however, that if any such leave exceeds ninety (90) days, then, on the ninety-first (91st day of such leave the Participant's Service shall be deemed to have terminated unless the Participant's right to return to Service with the Participating Corporation Group is guaranteed by statute or contract. Notwithstanding the foregoing, unless otherwise designated by the Corporation or required by law, a leave of absence shall not be treated as Service for purposes of calculating the Participant's Vesting Ratio. The Participant's Service shall be deemed to have terminated either upon an actual termination of Service or upon the member of the Participating Corporation Group for which the Participant performs Service ceasing to be a member of the Participating Corporation Group. Subject to the foregoing, the Corporation, in its sole discretion, shall determine whether the Participant's Service has terminated and the effective date of such termination.

In no event shall the option be exercisable for more shares then the aggregate number of optioned shares purchasable hereunder, subject to adjustment as set out in Section 7.

If the number of shares taken up under the option at any time is less

than the number of optioned shares covered by the then applicable exercisable portion of the option, the Participant shall have the right, at any time or from time to time during the remainder of the term of the option, to purchase such number of optioned shares that was purchasable, but not purchased by the Participant, at such time. Notwithstanding any of the foregoing, at the close of business on May 1, 2010 (hereinafter called the "expiry date"), the option shall forthwith expire and terminate and be of no further force or effect whatsoever as to such of the optioned shares in respect of which such option has not been previously exercised.

26. Termination of Participant

In the event of the termination of the Participant's employment, engagement or association with the Corporation or any of its subsidiaries prior to the close of business on the expiry date for any reason, including, without limitation, death, the option may be exercised by the Participant, or in the case of the death of the Participant by his legal personal representative, to the same extent as the Participant could have exercised it on the date of such termination under the provisions of Section 3 hereof at any time up to and including, but not after, a date thirty (30) days after the date of such termination or prior to the close of business on the expiry date, whichever is the earlier.

27. Exercise of Option

10

(a) Subject to the provisions of Sections 3, 4 and 11 hereof, the option shall be exercisable at any time and from time to time as aforesaid by the Participant, or, if applicable, his personal legal representative, giving a notice, in the form attached hereto as Schedule "A", and delivered to the Secretary of the Corporation, which notice shall specify therein that the Participant wishes to exercise the option and indicate the number of optioned shares with respect to which the option is being exercised. Unless otherwise determined by the Board, at its sole discretion, such notice shall be accompanied by payment (by cash or certified cheque) in full of the purchase price for the number of optioned shares with respect to which the option is being exercised. Upon receiving any such notice of exercise of option as aforesaid, the Corporation shall forthwith, subject to arrangements with respect to any pledge of shares by the Participant as security for any loan which may be extended to the Participant, deliver to the Participant, or his personal legal representative, within twenty (20) days following receipt by the Corporation of any such notice of exercise of option, a copy of the certificate or certificates in the name of the Participant representing such number of the optioned shares as is indicated in the notice of exercise of option. The Corporation shall retain the original certificate or certificates representing such optioned shares.

(b) The option hereby granted shall be deemed to have been exercised with respect to the number of shares specified in such notice on the date that payment of the purchase price for such number of optioned shares together with the notice of exercise is received by the Corporation.

(c) In the event that, at the time the Participant exercises his or her option, there is a Shareholders Agreement in effect

among the shareholders of the Corporation and the Participant is not already a party to any such agreement, then, together with the notice of exercise, the Participant shall deliver to the Corporation an acknowledgement as evidence that he or she has agreed to be bound by all of the terms and conditions of the Shareholders Agreement, as if he or she was an original signatory thereto.

28. No Obligation to Purchase Optioned Shares

Nothing herein contained or done pursuant hereto shall obligate the Participant to purchase and/or pay for any optioned shares except those optioned shares in respect of which the Participant shall have exercised his option to purchase hereunder in the manner hereinbefore provided.

29. Adjustments to Optioned Shares

(a) In the event of any sub-division, re-division or change of the shares of the Corporation at any time prior to the expiry date into a greater number of shares, the Corporation shall deliver at the time of any exercise thereafter of the option such additional number of shares as would have resulted from such

11

sub-division, re-division or change if such exercise of the option had been prior to the date of such sub-division, re-division or change, provided that no fractional shares shall be issued pursuant to an exercise of the option.

(b) In the event of any consolidation or change of the shares of the Corporation at any time prior to the expiry date into a lesser number of shares, the number of shares deliverable by the Corporation on any exercise thereafter of the option shall be reduced to such number of shares as would have resulted from such consolidation or change if such exercise of the option had been prior to the date of such consolidation or change, provided that no fractional shares shall be issued pursuant to an exercise of the option.

30. Merger, Amalgamation, Dissolution, Liquidation, Etc.

(a) In the event of a merger, amalgamation or consolidation of the Corporation with or into another corporation (other than a merger, amalgamation or consolidation of the competition with one or more of the subsidiaries or affiliates), or the sale of substantially all of the assets of theCorporation, the Participant's option shall be accelerated and become fully exercisable, notwithstanding that the optioned shares may not have previously vested; provided, however, that if the successor corporation, or a parent or subsidiary of such successor corporation agrees to assume all outstanding options issued by the Corporation or substitute equivalent options therefore, then the Board, in its sole discretion, shall have the power to determine that the Participant's option which is not fully exercisable shall not be accelerated but shall be assumed or that such equivalent options shall be substituted therefor. If the Participant's option becomes fully exercisable as set forth above, the Board shall notify the Participant that his option shall be fully exercisable for a period of thirty (30) days from the date of such notice, and that the option will terminate upon the expiration of such period.

- (b) In the event of the proposed dissolution, liquidation or winding-up of the Corporation, to the extent that the Participant's option has not been previously exercised, it will terminate immediately prior to the consummation of such proposed action. The Board may, in the exercise of its sole discretion in such instances, declare that the Participant's option shall terminate as of a date fixed by the Board and give the Participant the right to exercise his option as to all or any part of the optioned shares, including shares as to which the option would not otherwise be exercisable.
- 31. Public Offering

If, at any time, when the option remains unexercised with respect to any optioned shares, the Board authorizes the Corporation to make a public offering of its securities, the Board may, in its sole discretion: (a) permit the Participant to exercise its option in respect of all or any of the optioned shares in respect of which the option has not been previously exercised, at any time until a date which shall be specified by the Board and (b) the Board may, at its

12

option, require the acceleration of the time for the exercise of the option and of the time for the fulfillment of any conditions or restrictions on such exercise.

32. Rights and Obligations as a Shareholder

The Participant shall have no rights whatsoever, as a shareholder, in respect of any of the optioned shares (including any right to receive dividends or other distributions therefrom or thereon) other than in respect of optioned shares in respect of which the Participant shall have exercised his option to purchase hereunder and which the Participant shall have actually taken up and paid for.

33. Administration of the Plan

The Participant acknowledges and agrees that the Plan and the option shall be administered by the Board, or such persons as may be designated by the Board (hereinafter called the "Committee"), and that the Board or the Committee, as the case may be, shall have full and final authority to make such decisions and determinations as may be necessary with respect to the administration of the Plan and the option. The Participant agrees that any decisions or determinations made by the Board or the Committee with respect to the Plan or the option shall be final, binding and conclusive for all purposes.

34. Notice

(a) Any notices required under the option shall be in writing and given by personal delivery or by ordinary pre-paid mail to the recipient as follows:

(i) to the Corporation at:

One Antares Drive Suite 300 Nepean, Ontario K2E 8C4

Attention: President

(ii) and to the Participant at:

1708-160 Chapel Avenue Ottawa, Ontario K1N 8PS

(b) Any notice given by personal delivery or by ordinary pre-paid mail shall be conclusively deemed to have been given on the day of receipt thereof by the recipient.

35. Time of the Essence

13

Time shall be of the essence of this Agreement.

36. Successors and Assigns

This Agreement shall enure to the benefit of and be binding upon the Corporation, its successors and assigns, and the Participant and his legal personal representative. This Agreement shall not be assignable or transferable by the Participant or his legal personal representative.

37. Gender and Number

Words importing gender shall include the masculine, feminine and neuter genders. Words importing the singular include the plural and vice versa.

38. Entire Agreement and Amendment

This Agreement and the Plan constitute the entire agreement between the Corporation and the Participant pertaining to the subject matter hereof and supercede all prior agreements, understandings, negotiations and discussions, whether oral or written, between the Corporation and the Participant pertaining to the subject matter hereof. No amendment of any provision of this Agreement shall be binding unless in writing and executed by the President of the Corporation and the Participant.

39. Governing Law

This Agreement shall be construed in accordance with and be governed by the laws of the Province of Ontario and the laws of Canada applicable therein and shall be deemed to have been made in the said Province.

14

IN WITNESS WHEREOF this Agreement has been executed by the parties hereto with effect as of and from the date first written above.

CADABRA DESIGN AUTOMATION INC.

By:____

SIGNED, SEALED AND DELIVERED in the presence of

)))) Participant: Jerome Bastien

15

Schedule "A"

Cadabra Design Automation Inc. One Antares Drive Suite 300 Nepean, Ontario K2E 8C4

Attention: President

[Date]

Dear Sir:

Re: Stock Option Plan

Please be advised that I,..... Common being the holder of an option to purchase Common shares of Cadabra Design Automation Inc. (the "Corporation") at the subscription price of \$..... per Common Share, hereby exercise my option to purchase of such Common shares (the "Shares") of the Corporation. I enclose my cheque payable to the Corporation for \$ representing the full purchase price for the Shares. Please arrange for delivery to me of a certificate representing the Shares of the Corporation registered as follows:

Name in which certificate is to be registered

Full Address

Yours very truly,

Exhibit 4.7

CADABRA DESIGN LIBRARIES, INC. U.S. STOCK OPTION PLAN

1. ESTABLISHMENT, PURPOSE AND TERM OF PLAN.

1.1. Establishment. The Cadabra Design Libraries, Inc. U.S. Stock Option Plan (the "Plan") is hereby established effective as of _____, 1997.

1.2. Purpose. The purpose of the Plan is to advance the interests of the Participating Company Group and its shareholders by providing an incentive to attract, retain and reward persons performing services for the Participating Company Group and by motivating such persons to contribute to the growth and profitability of the Participating Company Group.

1.3. Term of Plan. The Plan shall continue in effect until the earlier of its termination by the Board or the date on which all of the shares of Stock available for issuance under the Plan have been issued and all restrictions on such shares under the terms of the Plan and the agreements evidencing Options granted under the Plan have lapsed. However, all Options shall be granted, if at all, within ten (10) years from the earlier of the date the Plan is adopted by the Board or the date the Plan is duly approved by the shareholders of the Company.

2. DEFINITIONS AND CONSTRUCTION.

2.1. Definitions. Whenever used herein, the following terms shall have their respective meanings set forth below:

(a) "Board" means the Board of Directors of the Company. If one or more Committees have been appointed by the Board to administer the Plan, "Board" also means such Committee(s).

(b) "Code" means the Internal Revenue Code of 1986, as amended, and any applicable regulations promulgated thereunder.

(c) "Committee" means the Compensation Committee or other committee of the Board duly appointed to administer the Plan and having such powers as shall be specified by the Board. Unless the powers of the Committee have been specifically limited, the Committee shall have all of the powers of the Board granted herein, including, without limitation, the power to amend or terminate the Plan at any time, subject to the terms of the Plan and any applicable limitations imposed by law.

(d) "Company" means Cadabra Design Libraries, Inc., or any successor corporation thereto.

(e) "Consultant" means any person, including an advisor, engaged by a Participating Company to render services other than as an Employee or a Director.

(f) "Director" means a member of the Board or of the board of directors of any other Participating Company.

(g) "Disability" means the inability of the Optionee, in the opinion of a qualified physician acceptable to the Company, to perform the major duties of

the Optionee's position with the Participating Company group because of the sickness or injury of the Optionee.

(h) "Employee" means any person treated as an employee (including an officer or a Director who is also treated as an employee) in the records of a Participating Company and, with respect to any Incentive Stock Option granted to such person, who is an employee for purposes of Section 422 of the Code; provided, however, that neither service as a Director nor payment of a director's fee shall be sufficient to constitute employment for purposes of the Plan.

(i) "Exchange Act" means the Securities Exchange Act of 1934, as amended.

(j) "Fair Market Value" means, as of any date, the value of a share of Stock or other property as determined by the Board, in its sole discretion, or by the Company, in its sole discretion, if such determination is expressly allocated to the Company herein, subject to the following:

(i) If, on such date, there is a public market for the Stock, the Fair Market Value of a share of Stock shall be the closing sale price of a share of Stock (or the mean of the closing bid and asked prices of a share of Stock if the Stock is so quoted instead) as quoted on the Nasdaq National Market, the Nasdaq Small-Cap Market or such other national or regional securities exchange or market system constituting the primary market for the Stock, as reported in the Wall Street Journal or such other source as the Company deems reliable. If the relevant date does not fall on a day on which the Stock has traded on such securities exchange or market system, the date on which the Fair Market Value shall be established shall be the last day on which the Stock was so traded prior to the relevant date, or such other appropriate day as shall be determined by the Board, in its sole discretion.

(ii) If, on such date, there is no public market for the Stock, the Fair Market Value of a share of Stock shall be as determined by the Board without regard to any restriction other than a restriction which, by its terms, will never lapse.

(k) "Incentive Stock Option" means an Option intended to be (as set forth in the Option Agreement) and which qualifies as an incentive stock option within the meaning of Section 422(b) of the Code.

(1) "Insider" means an officer or a Director of the Company or any other person whose transactions in Stock are subject to Section 16 of the Exchange Act.

(m) "Nonstatutory Stock Option" means an Option not intended to be (as set forth in the Option Agreement) or which does not qualify as an Incentive Stock Option.

2

(n) "Option" means a right to purchase Stock (subject to adjustment as provided in Section 4.2) pursuant to the terms and conditions of the Plan. An Option may be either an Incentive Stock Option or a Nonstatutory Stock Option.

(o) "Option Agreement" means a written agreement between the Company and an Optionee setting forth the terms, conditions and restrictions of the Option granted to the Optionee and any shares acquired upon the exercise thereof.

(p) "Optionee" means a person who has been granted one or more Options.

(q) "Parent Corporation" means any present or future "parent corporation" of the Company, as defined in Section 424(e) of the Code.

(r) "Participating Company" means the Company or any Parent Corporation or Subsidiary Corporation.

(s) "Participating Company Group" means, at any point in time, all corporations collectively which are then Participating Companies.

(t) "Rule 16b-3" means Rule 16b-3 under the Exchange Act, as amended from time to time, or any successor rule or regulation.

(u) "Securities Act" means the Securities Act of 1933, as amended.

(v) "Service" means an Optionee's employment or service with the Participating Company Group, whether in the capacity of an Employee, a Director or a Consultant. The Optionee's Service shall not be deemed to have terminated merely because of a change in the capacity in which the Optionee renders Service to the Participating Company Group or a change in the Participating Company for which the Optionee renders such Service, provided that there is no interruption or termination of the Optionee's Service. Furthermore, an Optionee's Service with the Participating Company Group shall not be deemed to have terminated if the Optionee takes any military leave, sick leave, or other bona fide leave of absence approved by the Company; provided, however, that if any such leave exceeds ninety (90) days, on the ninety-first (91st) day of such leave the Optionee's Service shall be deemed to have terminated unless the Optionee's right to return to Service with the Participating Company Group is guaranteed by statute or contract. Notwithstanding the foregoing, unless otherwise designated by the Company or required by law, a leave of absence shall not be treated as Service for purposes of determining vesting under the Optionee's Option Agreement. The Optionee's Service shall be deemed to have terminated either upon an actual termination of Service or upon the corporation for which the Optionee performs Service ceasing to be a Participating Company. Subject to the foregoing, the Company, in its sole discretion, shall determine whether the Optionee's Service has terminated and the effective date of such termination.

(w) "Stock" means the common stock of the Company, as adjusted from time to time in accordance with Section 4.2.

3

(x) "Subsidiary Corporation" means any present or future "subsidiary corporation" of the Company, as defined in Section 424(f) of the Code.

(y) "Ten Percent Owner Optionee" means an Optionee who, at the time an Option is granted to the Optionee, owns stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of a Participating Company within the meaning of Section 422(b)(6) of the Code.

2.2. Construction. Captions and titles contained herein are for convenience only and shall not affect the meaning or interpretation of any provision of the Plan. Except when otherwise indicated by the context, the singular shall include the plural and the plural shall include the singular. Use of the term "or" is not intended to be exclusive, unless the context clearly requires otherwise.

3. ADMINISTRATION.

3.1. Administration by the Board. The Plan shall be administered by the Board. All questions of interpretation of the Plan or of any Option shall be determined by the Board, and such determinations shall be final and binding upon all persons having an interest in the Plan or such Option. Any officer of a Participating Company shall have the authority to act on behalf of the Company with respect to any matter, right, obligation, determination or election which is the responsibility of or which is allocated to the Company herein, provided the officer has apparent authority with respect to such matter, right, obligation, determination or election.

3.2. Administration with Respect to Insiders. With respect to participation by Insiders in the Plan, at any time that any class of equity security of the Company is registered pursuant to Section 12 of the Exchange Act, the Plan shall be administered in compliance with the requirements, if any, of Rule 16b-3.

3.3. Powers of the Board. In addition to any other powers set forth in the Plan and subject to the provisions of the Plan, the Board shall have the full and final power and authority, in its sole discretion:

(a) to determine the persons to whom, and the time or times at which, Options shall be granted and the number of shares of Stock to be subject to each Option;

(b) to designate Options as Incentive Stock Options or Nonstatutory Stock
Options;

(c) to determine the Fair Market Value of shares of Stock or other property;

(d) to determine the terms, conditions and restrictions applicable to each Option (which need not be identical) and any shares acquired upon the exercise thereof, including, without limitation, (i) the exercise price of the Option, (ii) the method of payment for shares purchased upon the exercise of the Option, (iii) the method for satisfaction of any tax withholding obligation arising in connection with the Option or such shares, including by the withholding or delivery of shares of stock, (iv) the timing, terms and conditions of the

4

exercisability of the Option or the vesting of any shares acquired upon the exercise thereof, (v) the time of the expiration of the Option, (vi) the effect of the Optionee's termination of Service with the Participating Company Group on any of the foregoing, and (vii) all other terms, conditions and restrictions applicable to the Option or such shares not inconsistent with the terms of the Plan;

(e) to approve one or more forms of Option Agreement;

(f) to amend, modify, extend, cancel, renew, reprice or otherwise adjust the exercise price of, or grant a new Option in substitution for, any Option or to waive any restrictions or conditions applicable to any Option or any shares acquired upon the exercise thereof;

(g) to accelerate, continue, extend or defer the exercisability of any Option or the vesting of any shares acquired upon the exercise thereof, including with respect to the period following an Optionee's termination of Service with the Participating Company Group;

(h) to prescribe, amend or rescind rules, guidelines and policies relating to the Plan, or to adopt supplements to, or alternative versions of, the Plan, including, without limitation, as the Board deems necessary or desirable to comply with the laws of, or to accommodate the tax policy or custom of, foreign jurisdictions whose citizens may be granted Options; and

(i) to correct any defect, supply any omission or reconcile any inconsistency in the Plan or any Option Agreement and to make all other determinations and take such other actions with respect to the Plan or any Option as the Board may deem advisable to the extent consistent with the Plan and applicable law.

4. SHARES SUBJECT TO PLAN.

4.1. Maximum Number of Shares Issuable. Subject to adjustment as provided in

Section 4.2, the maximum aggregate number of shares of Stock that may be issued under the Plan shall be ______(___) and shall consist of authorized but unissued or reacquired shares of Stock or any combination thereof. If an outstanding Option for any reason expires or is terminated or canceled or shares of Stock acquired, subject to repurchase, upon the exercise of an Option are repurchased by the Company, the shares of Stock allocable to the unexercised portion of such Option, or such repurchased shares of Stock, shall again be available for issuance under the Plan.

4.2. Adjustments for Changes in Capital Structure. In the event of any stock dividend, stock split, reverse stock split, recapitalization, combination, reclassification or similar change in the capital structure of the Company, appropriate adjustments shall be made in the number and class of shares subject to the Plan and to any outstanding Options and in the exercise price per share of any outstanding Options. If a majority of the shares which are of the same class as the shares that are subject to outstanding Options are exchanged for, converted into, or otherwise become (whether or not pursuant to an Ownership Change Event, as defined in Section 8.1) shares of another corporation (the "New Shares"), the Board may unilaterally amend the outstanding Options to provide that such Options are exercisable for New Shares. In the event of any such amendment, the number of shares subject to, and the exercise price per share of,

5

the outstanding Options shall be adjusted in a fair and equitable manner as determined by the Board, in its sole discretion. Notwithstanding the foregoing, any fractional share resulting from an adjustment pursuant to this Section 4.2 shall be rounded up or down to the nearest whole number, as determined by the Board, and in no event may the exercise price of any Option be decreased to an amount less than the par value, if any, of the stock subject to the Option. The adjustments determined by the Board pursuant to this Section 4.2 shall be final, binding and conclusive.

5. ELIGIBILITY AND OPTION LIMITATIONS.

5.1. Persons Eligible for Options. Options may be granted only to Employees, Consultants, and Directors. For purposes of the foregoing sentence, "Employees," "Consultants" and "Directors" shall include prospective Employees, prospective Consultants and prospective Directors to whom Options are granted in connection with written offers of an employment or other service relationship with the Participating Company Group. Eligible persons may be granted more than one (1) Option.

5.2. Option Grant Restrictions. Any person who is not an Employee on the effective date of the grant of an Option to such person may be granted only a Nonstatutory Stock Option. An Incentive Stock Option granted to a prospective Employee upon the condition that such person become an Employee shall be deemed granted effective on the date such person commences service with a Participating Company, with an exercise price determined as of such date in accordance with Section 6.1.

5.3. Fair Market Value Limitation. To the extent that options designated as Incentive Stock Options (granted under all stock option plans of the Participating Company Group, including the Plan) become exercisable by an Optionee for the first time during any calendar year for stock having a Fair Market Value greater than One Hundred Thousand Dollars (\$100,000), the portion of such options which exceeds such amount shall be treated as Nonstatutory Stock Options. For purposes of this Section 5.3, options designated as Incentive Stock Options shall be taken into account in the order in which they were granted, and the Fair Market Value of stock shall be determined as of the time the option with respect to such stock is granted. If the Code is amended to provide for a

different limitation from that set forth in this Section 5.3, such different limitation shall be deemed incorporated herein effective as of the date and with respect to such Options as required or permitted by such amendment to the Code. If an Option is treated as an Incentive Stock Option in part and as a Nonstatutory Stock Option in part by reason of the limitation set forth in this Section 5.3, the Optionee may designate which portion of such Option the Optionee is exercising. In the absence of such designation, the Optionee shall be deemed to have exercised the Incentive Stock Option portion of the Option first. Separate certificates representing each such portion shall be issued upon the exercise of the Option.

5.4. Toronto Stock Exchange Grant Limit. If, on the effective date of grant of an Option, the Stock is listed on The Toronto Stock Exchange (the "TSE"), the

6

number of shares of Stock subject to an Option granted to any one Optionee under the Plan together with any other Stock reserved for issuance under any share compensation arrangements to such Optionee shall not exceed five percent (5%) of the total number of issued and outstanding shares of Stock (determined on a non-diluted basis) on the effective date of grant of the Option.

6. TERMS AND CONDITIONS OF OPTIONS.

Options shall be evidenced by Option Agreements specifying the number of shares of Stock covered thereby, in such form as the Board shall from time to time establish. No Option or purported Option shall be a valid and binding obligation of the Company unless evidenced by a fully executed Option Agreement. Option Agreements may incorporate all or any of the terms of the Plan by reference and shall comply with and be subject to the following terms and conditions:

6.1. Exercise Price. The exercise price for each Option shall be established in the sole discretion of the Board; provided, however, that (a) the exercise price per share for an Incentive Stock Option shall be not less than the Fair Market Value of a share of Stock on the effective date of grant of the Option, (b) the exercise price per share for a Nonstatutory Stock Option shall be not less than eighty-five percent (85%) of the Fair Market Value of a share of Stock on the effective date of grant of the Option, and (c) no Option granted to a Ten Percent Owner Optionee shall have an exercise price per share less than one hundred ten percent (110%) of the Fair Market Value of a share of Stock on the effective date of grant of the Option. Notwithstanding the foregoing, an Option (whether an Incentive Stock Option or a Nonstatutory Stock Option) may be granted with an exercise price lower than the minimum exercise price set forth above if such Option is granted pursuant to an assumption or substitution for another option in a manner qualifying under the provisions of Section 424(a) of the Code. Notwithstanding any of the foregoing, in the event that the Stock is traded on the TSE on the effective date of grant of the Option, the exercise price per share for such Option shall not be less than the closing market price of a share of the Stock as reported on the TSE on the date of grant of the Option.

6.2. Exercise Period. Options shall be exercisable at such time or times, or upon such event or events, and subject to such terms, conditions, performance criteria, and restrictions as shall be determined by the Board and set forth in the Option Agreement evidencing such Option; provided, however, that (a) no Option shall be exercisable after the expiration of ten (10) years after the effective date of grant of such Option, (b) no Incentive Stock Option granted to a Ten Percent Owner Optionee shall be exercisable after the expiration of five (5) years after the effective date of grant of such Option, (c) no Option granted to a prospective Employee, prospective Consultant or prospective

Director may become exercisable prior to the date on which such person commences Service with a Participating Company, and (d) with the exception of an Option granted to an officer, Director or Consultant, no Option shall become exercisable at a rate less than twenty percent (20%) per year over a period of five (5) years from the effective date of grant of such Option, subject to the Optionee's continued Service. Subject to the foregoing, unless otherwise specified by the Board in the grant of an Option, any Option granted hereunder shall have a term of ten (10) years from the effective date of grant of the Option.

7

6.3. Payment of Exercise Price.

(a) Forms of Consideration Authorized. Except as otherwise provided below, payment of the exercise price for the number of shares of Stock being purchased pursuant to any Option shall be made (i) in cash, by check, or cash equivalent. (ii) by tender to the Company of shares of Stock owned by the Optionee having a Fair Market Value (as determined by the Company without regard to any restrictions on transferability applicable to such stock by reason of federal or state securities laws or agreements with an underwriter for the Company) not less than the exercise price, (iii) by the assignment of the proceeds of a sale or loan with respect to some or all of the shares being acquired upon the exercise of the Option (including, without limitation, through an exercise complying with the provisions of Regulation T as promulgated from time to time by the Board of Governors of the Federal Reserve System) (a "Cashless Exercise"), (iv) by the Optionee's promissory note in a form approved by the Company, (v) by such other consideration as may be approved by the Board from time to time to the extent permitted by applicable law, or (vi) by any combination thereof. The Board may at any time or from time to time, by adoption of or by amendment to the standard forms of Option Agreement described in Section 7, or by other means, grant Options which do not permit all of the foregoing forms of consideration to be used in payment of the exercise price or which otherwise restrict one or more forms of consideration.

(b) Tender of Stock. Notwithstanding the foregoing, an Option may not be exercised by tender to the Company of shares of Stock to the extent such tender of Stock would constitute a violation of the provisions of any law, regulation or agreement restricting the redemption of the Company's stock. Unless otherwise provided by the Board, an Option may not be exercised by tender to the Company of shares of Stock unless such shares either have been owned by the Optionee for more than six (6) months or were not acquired, directly or indirectly, from the Company.

(c) Cashless Exercise. The Company reserves, at any and all times, the right, in the Company's sole and absolute discretion, to establish, decline to approve or terminate any program or procedures for the exercise of Options by means of a Cashless Exercise.

(d) Payment by Promissory Note. No promissory note shall be permitted if the exercise of an Option using a promissory note would be a violation of any law. Any permitted promissory note shall be on such terms as the Board shall determine at the time the Option is granted. The Board shall have the authority to permit or require the Optionee to secure any promissory note used to exercise an Option with the shares of Stock acquired upon the exercise of the Option or with other collateral acceptable to the Company (unless use of such other collateral will violate any applicable rules or regulations established by the TSE). Unless otherwise provided by the Board, if the Company at any time is subject to the regulations promulgated by the Board of Governors of the Federal Reserve System or any other governmental entity affecting the extension of credit in connection with the Company's securities, any promissory note shall

comply with such applicable regulations, and the Optionee shall pay the unpaid principal and accrued interest, if any, to the extent necessary to comply with such applicable regulations.

8

6.4. Tax Withholding. The Company shall have the right, but not the obligation, to deduct from the shares of Stock issuable upon the exercise of an Option, or to accept from the Optionee the tender of, a number of whole shares of Stock having a Fair Market Value, as determined by the Company, equal to all or any part of the federal, state, local and foreign taxes, if any, required by law to be withheld by the Participating Company Group with respect to such Option or the shares acquired upon the exercise thereof. Alternatively or in addition, in its sole discretion, the Company shall have the right to require the Optionee, through payroll withholding, cash payment or otherwise, including by means of a Cashless Exercise, to make adequate provision for any such tax withholding obligations of the Participating Company Group arising in connection with the Option or the shares acquired upon the exercise thereof. The Company shall have no obligation to deliver shares of Stock or to release shares of Stock from an escrow established pursuant to the Option Agreement until the Participating Company Group's tax withholding obligations have been satisfied by the Optionee.

6.5. Repurchase Rights. Shares issued under the Plan may be subject to a right of first refusal, one or more repurchase options, or other conditions and restrictions as determined by the Board in its sole discretion at the time the Option is granted. The Company shall have the right to assign at any time any repurchase right it may have, whether or not such right is then exercisable, to one or more persons as may be selected by the Company. Upon request by the Company, each Optionee shall execute any agreement evidencing such transfer restrictions prior to the receipt of shares of Stock hereunder and shall promptly present to the Company any and all certificates representing shares of Stock acquired hereunder for the placement on such certificates of appropriate legends evidencing any such transfer restrictions.

6.6. Effect of Termination of Service.

(a) Option Exercisability. Subject to earlier termination of the Option as otherwise provided herein, an Option shall be exercisable after an Optionee's termination of Service as follows:

(i) Disability. If the Optionee's Service with the Participating Company Group is terminated because of the Disability of the Optionee, the Option, to the extent unexercised and exercisable on the date on which the Optionee's Service terminated, may be exercised by the Optionee (or the Optionee's guardian or legal representative) at any time prior to the expiration of six (6) months (or such longer period of time as determined by the Board, in its sole discretion) after the date on which the Optionee's Service terminated, but in any event no later than the date of expiration of the Option's term as set forth in the Option Agreement evidencing such Option (the "Option Expiration Date").

(ii) Death. If the Optionee's Service with the Participating Company Group is terminated because of the death of the Optionee, the Option, to the extent unexercised and exercisable on the date on which the Optionee's Service terminated, may be exercised by the Optionee's legal representative or other person who acquired the right to exercise the Option by reason of the Optionee's death at any time prior to the expiration of six (6) months (or such longer period of time as determined by the Board, in its sole discretion) after the date on which the Optionee's Service terminated, but in any event no later than the Option Expiration Date. The Optionee's Service shall be deemed to have terminated on account of death if the Optionee dies within thirty (30) days after the Optionee's termination of Service (other than upon termination for "Cause", as defined below).

9

(iii) Other Termination of Service. If the Optionee's Service with the Participating Company Group terminates for any reason, except Disability or death, the Option, to the extent unexercised and exercisable by the Optionee on the date on which the Optionee's Service terminated, may be exercised by the Optionee within thirty (30) days (or such longer period of time as determined by the Board, in its sole discretion) after the date on which the Optionee's Service terminated, but in any event no later than the Option Expiration Date.

(b) Extension if Exercise Prevented by Law. Notwithstanding the foregoing, if the exercise of an Option within the applicable time periods set forth in Section 6.6(a) is prevented by the provisions of Section 11 below, the Option shall remain exercisable until three (3) months after the date the Optionee is notified by the Company that the Option is exercisable, but in any event no later than the Option Expiration Date.

(c) Extension if Optionee Subject to Section 16(b). Notwithstanding the foregoing, if a sale within the applicable time periods set forth in Section 6.6(a) of shares acquired upon the exercise of the Option would subject the Optionee to suit under Section 16(b) of the Exchange Act, the Option shall remain exercisable until the earliest to occur of (i) the tenth (10th) day following the date on which a sale of such shares by the Optionee would no longer be subject to such suit, (ii) the one hundred and ninetieth (190th) day after the Optionee's termination of Service, or (iii) the Option Expiration Date.

(d) Termination for Cause. Notwithstanding any other provision of the Plan to the contrary, if the Optionee's Service with the Participating Company Group is terminated for Cause as defined below, the Option shall terminate and cease to be exercisable immediately upon such termination of Service. For purposes of this Section 6.6(d), "Cause" shall mean any of the following: (1) the Optionee's theft, dishonesty, or falsification of any Participating Company documents or records; (2) the Optionee's improper use or disclosure of a Participating Company's confidential or proprietary information; (3) any action by the Optionee which has a detrimental effect on a Participating Company's reputation or business; (4) the Optionee's failure of inability to perform any reasonable assigned duties after written notice from the Participating Company Group of, and a reasonable opportunity to cure, such failure or inability; (5) any material breach by the Optionee of any employment agreement between the Optionee and the Participating Company Group, which breach is not cured pursuant to the terms of such agreement; or (6) the Optionee's conviction (including any plea of guilty or nolo contendere) of any criminal act which impairs the Optionee's ability to perform his or her duties with the Participating Company Group.

7. STANDARD FORMS OF OPTION AGREEMENT.

7.1. Incentive Stock Options. Unless otherwise provided by the Board at the time the Option is granted, an Option designated as an "Incentive Stock Option" shall comply with and be subject to the terms and conditions set forth in the form of Incentive Stock Option Agreement adopted by the Board concurrently with its adoption of the Plan and as amended from time to time.

10

7.2. Nonstatutory Stock Options. Unless otherwise provided by the Board at the time the Option is granted, an Option designated as a "Nonstatutory Stock Option" shall comply with and be subject to the terms and conditions set forth

in the form of Nonstatutory Stock Option Agreement adopted by the Board concurrently with its adoption of the Plan and as amended from time to time.

7.3. Authority to Vary Terms. The Board shall have the authority from time to time to vary the terms of any of the standard forms of Option Agreement described in this Section 7 either in connection with the grant or amendment of an individual Option or in connection with the authorization of a new standard form or forms; provided, however, that the terms and conditions of any such new, revised or amended standard form or forms of Option Agreement shall be in accordance with the terms of the Plan.

8. CHANGE IN CONTROL.

8.1. Definitions.

(a) An "Ownership Change Event" shall be deemed to have occurred if any of the following occurs with respect to the Company:

(i) the direct or indirect sale or exchange in a single or series of related transactions by the shareholders of the Company of more than fifty percent (50%) of the voting stock of the Company;

(ii) a merger or consolidation in which the Company is a party;

(iii) the sale, exchange, or transfer of all or substantially all of the assets of the Company; or

(iv) a liquidation or dissolution of the Company.

(b) A "Change in Control" shall mean an Ownership Change Event or a series of related Ownership Change Events (collectively, the "Transaction") wherein the shareholders of the Company immediately before the Transaction do not retain immediately after the Transaction, in substantially the same proportions as their ownership of shares of the Company's voting stock immediately before the Transaction, direct or indirect beneficial ownership of more than fifty percent (50%) of the total combined voting power of the outstanding voting stock of the Company or the corporation or corporations to which the assets of the Company were transferred (the "Transferee Corporation(s)"), as the case may be. For purposes of the preceding sentence, indirect beneficial ownership shall include, without limitation, an interest resulting from ownership of the voting stock of one or more corporations which, as a result of the Transaction, own the Company or the Transferee Corporation(s), as the case may be, either directly or through one or more subsidiary corporations. The Board shall have the right to determine whether multiple sales or exchanges of the voting stock of the Company or multiple Ownership Change Events are related, and its determination shall be final, binding and conclusive.

11

8.2. Effect of Change in Control on Options. In the event of a Change in Control, the surviving, continuing, successor, or purchasing corporation or parent corporation thereof, as the case may be (the "Acquiring Corporation"), may either assume the Company's rights and obligations under outstanding Options or substitute for outstanding Options substantially equivalent options for the Acquiring Corporation's stock. For purposes of this Section 8.2, an Option shall be deemed assumed if, following the Change in Control, the Option confers the right to purchase in accordance with its terms and conditions, for each share of Stock subject to the Option immediately prior to the Change in Control, the consideration (whether stock, cash or other securities or property) to which a holder of a share of Stock on the effective date of the Change in Control was entitled. Any Options which are neither assumed or substituted for by the

Acquiring Corporation in connection with the Change in Control nor exercised as of the date of the Change in Control shall terminate and cease to be outstanding effective as of the date of the Change in Control. Notwithstanding the foregoing, shares acquired upon exercise of an Option prior to the Change in Control and any consideration received pursuant to the Change in Control with respect to such shares shall continue to be subject to all applicable provisions of the Option Agreement evidencing such Option except as otherwise provided in such Option Agreement. Furthermore, notwithstanding the foregoing, if the corporation the stock of which is subject to the outstanding Options immediately prior to an Ownership Change Event described in Section 8.1(a)(i) constituting a Change in Control is the surviving or continuing corporation and immediately after such Ownership Change Event less than fifty percent (50%) of the total combined voting power of its voting stock is held by another corporation or by other corporations that are members of an affiliated group within the meaning of Section 1504(a) of the Code without regard to the provisions of Section 1504(b) of the Code, the outstanding Options shall not terminate unless the Board otherwise provides in its sole discretion.

9. PROVISION OF INFORMATION.

At least annually, copies of the Company's balance sheet and income statement for the just completed fiscal year shall be made available to each Optionee and purchaser of shares of Stock upon the exercise of an Option. The Company shall not be required to provide such information to persons whose duties in connection with the Company assure them access to equivalent information.

10. NONTRANSFERABILITY OF OPTIONS.

During the lifetime of the Optionee, an Option shall be exercisable only by the Optionee or the Optionee's guardian or legal representative. No Option shall be assignable or transferable by the Optionee, except by will or by the laws of descent and distribution.

11. COMPLIANCE WITH SECURITIES LAW.

The grant of Options and the issuance of shares of Stock upon exercise of Options shall be subject to compliance with all applicable requirements of federal, state and foreign law with respect to such securities. Options may not be exercised if the issuance of shares of Stock upon exercise would constitute a violation of any applicable federal, state or foreign securities laws or other law or regulations or the requirements of any stock exchange or market system upon which the Stock may then be listed. In addition, no Option may be exercised unless (a) a registration statement under the Securities Act shall at the time of exercise of the Option be in effect with respect to the shares issuable upon exercise of the Option or (b) in the opinion of legal counsel to the Company, the shares issuable upon exercise of the Option may be issued in accordance with the terms of an applicable exemption from the registration requirements of the Securities Act. The inability of the Company to

12

obtain from any regulatory body having jurisdiction the authority, if any, deemed by the Company's legal counsel to be necessary to the lawful issuance and sale of any shares hereunder shall relieve the Company of any liability in respect of the failure to issue or sell such shares as to which such requisite authority shall not have been obtained. As a condition to the exercise of any Option, the Company may require the Optionee to satisfy any qualifications that may be necessary or appropriate, to evidence compliance with any applicable law or regulation and to make any representation or warranty with respect thereto as may be requested by the Company.

12. INDEMNIFICATION.

In addition to such other rights of indemnification as they may have as members of the Board or officers or employees of the Participating Company Group, members of the Board and any officers or employees of the Participating Company Group to whom authority to act for the Board or the Company is delegated shall be indemnified by the Company against all reasonable expenses, including attorneys' fees, actually and necessarily incurred in connection with the defense of any action, suit or proceeding, or in connection with any appeal therein, to which they or any of them may be a party by reason of any action taken or failure to act under or in connection with the Plan, or any right granted hereunder, and against all amounts paid by them in settlement thereof (provided such settlement is approved by independent legal counsel selected by the Company) or paid by them in satisfaction of a judgment in any such action, suit or proceeding, except in relation to matters as to which it shall be adjudged in such action, suit or proceeding that such person is liable for gross negligence, bad faith or intentional misconduct in duties; provided, however, that within sixty (60) days after the institution of such action, suit or proceeding, such person shall offer to the Company, in writing, the opportunity at its own expense to handle and defend the same.

13. TERMINATION OR AMENDMENT OF PLAN.

The Board may terminate or amend the Plan at any time. However, subject to changes in applicable law, regulations or rules that would permit otherwise, without the approval of the Company's shareholders, there shall be (a) no increase in the maximum aggregate number of shares of Stock that may be issued under the Plan (except by operation of the provisions of Section 4.2), (b) no change in the class of persons eligible to receive Incentive Stock Options, and (c) no other amendment of the Plan that would require approval of the Company's shareholders under any applicable law, regulation or rule. In any event, no termination or amendment of the Plan may adversely affect any then outstanding Option or any unexercised portion thereof, without the consent of the Optionee, unless such termination or amendment is required to enable an Option designated as an Incentive Stock Option to qualify as an Incentive Stock Option or is necessary to comply with any applicable law, regulation or rule.

13

14. SHAREHOLDER APPROVAL.

The Plan or any increase in the maximum number of shares of Stock issuable thereunder as provided in Section 4.1 (the "Maximum Shares") shall be approved by the shareholders of the Company within twelve (12) months of the date of adoption thereof by the Board. Options granted prior to shareholder approval of the Plan or in excess of the Maximum Shares previously approved by the shareholders shall become exercisable no earlier than the date of shareholder approval of the Plan or such increase in the Maximum Shares, as the case may be.

IN WITNESS WHEREOF, the undersigned Secretary of the Company certifies that the foregoing Cadabra Design Libraries, Inc. 1997 U.S. Stock Option Plan was duly adopted by the Board on ______, 1997.

Secretary

14

PLAN HISTORY

______,1997 Board adopts Plan, with an initial reserve of ___________shares. ___________Shareholders approve Plan, with an initial reserve of _________shares.

15

Exhibit 5.1

March 5, 2003

Synopsys, Inc. 700 East Middlefield Road Mountain View, California 94043

Re: Synopsys, Inc. Registration Statement on Form S-8

Ladies and Gentlemen:

We have acted as counsel to Synopsys, Inc., a Delaware corporation (the "Company"), in connection with a registration statement on Form S-8, as amended (the "Registration Statement") to be filed today with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act of 1933, as amended (the "Act"), for the registration of shares of the Company's Common Stock, par value \$0.01 per share (the "Securities"), to be issued under various option plans listed in the Registration Statement (the "Plans"), and the related preferred share purchase rights (the "Rights") to be issued pursuant to the Rights Agreement (the "Rights Agreement") dated as of November 24, 1999 between the Company and the Rights Agreen named therein.

We have participated in the preparation of the Registration Statement and have reviewed the originals or copies certified or otherwise identified to our satisfaction of all such corporate records of the Company and such other instruments and other certificates of public officials, officers and

representatives of the Company and such other persons, and we have made such investigations of law, as we have deemed appropriate as a basis for the opinions expressed below.

In arriving at the opinions expressed below, we have assumed the authenticity of all documents submitted to us as originals and the conformity to the originals of all documents submitted to us as copies. In addition, we have assumed and have not verified the accuracy as to factual matters of each document we have reviewed.

Based on the foregoing, it is our opinion that if, as and when the Securities are issued and sold (and the consideration therefor received) pursuant to the provisions of option agreements duly authorized under the Plans and in accordance with the Registration Statement, such Securities will be duly authorized, legally issued, fully paid and nonassessable.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement. In giving such consent, we do not thereby admit that we are "experts" within the meaning of the Act or the rules and regulations of the Securities and Exchange Commission issued thereunder with respect to any part of the Registration Statement, including this exhibit.

Very truly yours,

CLEARY, GOTTLIEB, STEEN & HAMILTON

By /s/ Arthur H. Kohn Arthur H. Kohn, a partner

Exhibit 23.1

Consent of Independent Auditors

The Board of Directors Synopsys, Inc.:

We consent to the incorporation herein by reference of our reports dated November 20, 2002, except as to Note 13, which is as of January 13, 2003, relating to the consolidated balance sheets of Synopsys, Inc. and subsidiaries as of October 31, 2002 and 2001, and the related consolidated statements of operations, stockholders' equity and comprehensive income, and cash flows for each of the years in the three-year period ended October 31, 2002, and the related consolidated financial statement schedule, which reports appear in the annual report on Form 10-K of Synopsys, Inc.

/s/ KPMG LLP

Mountain View, California

March 6, 2003